DOCUMENT RESUME

ED 405 803 IR 017 834

TITLE	North Carolina Computer Skills Curriculum Lesson Plans, 1-8: Ethical Issues.
INSTITUTION	North Carolina State Dept. of Public Instruction, Raleigh.
PUB DATE	95
NOTE	54p.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Access to Information; Class Activities; *Computer Literacy; Copyrights; Definitions; Educational Objectives; Elementary Education; *Ethics; Information Technology; Instructional Materials; Instructional Program Divisions; Learning Activities; Lesson Plans; Public Schools; Skills; State Curriculum Guides
IDENTIFIERS	*Computer Ethics; Computer Use; North Carolina

ABSTRACT

This curriculum guide contains computer skills activities for the public schools of North Carolina; these lesson plans are designed specifically for grades 1-8 and focus on ethical issues. The lesson plans for each grade include a list of materials needed, lesson time, teacher preparation activities, outline of activities, and instructional measure. Social Studies, communication, computer and information skills objectives addressed are outlined for each lesson. Worksheets, support materials dealing with copyrights, and copies of articles on related issues are also included. At the end of the document, a set of model lesson plans issued by the Software Publishers Association (SPA) is provided; this learning package is designed to help reinforce the importance of ethical issues in technology use. (AEF)

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ED 405 803

Ethical Issues

Computer Skills Curriculum

Terms

Computer Virus
Copyright Law
Ethical/Unethical
Freeware/Shareware
Hacker
Intellectual Property
Logic Bomb/Worm
Piracy
Private Data/Public Data
Public Domain Software
Computer-related Vandalism

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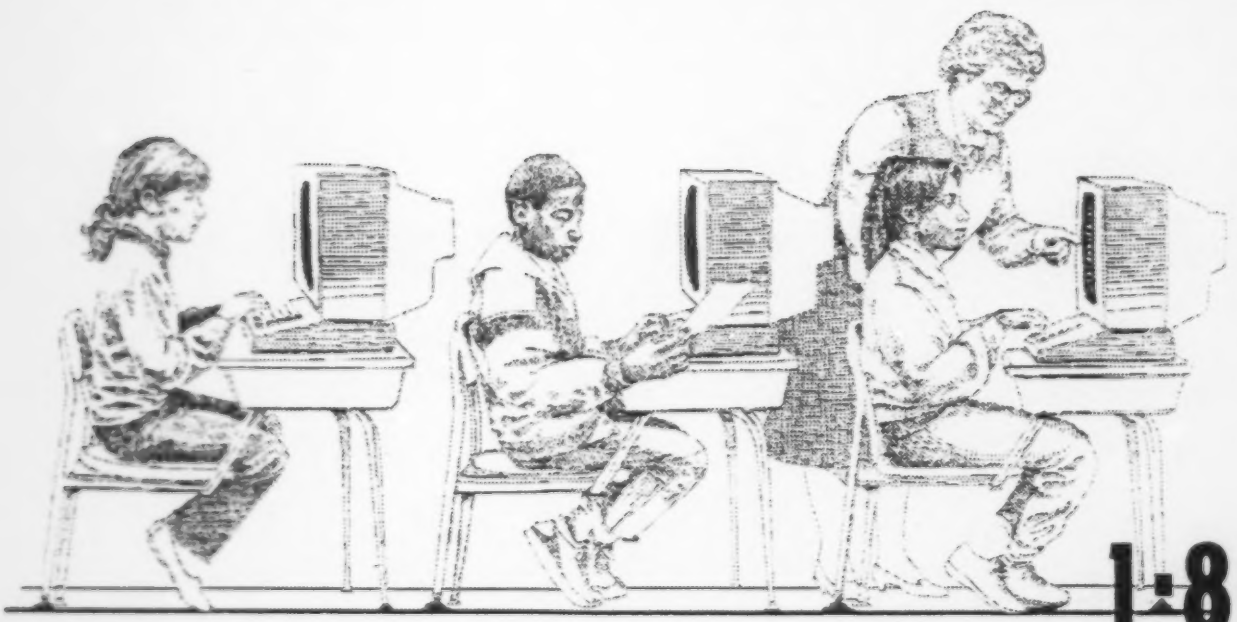

IR017834

1-8

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PUBLIC SCHOOLS OF NORTH CAROLINA
301 NORTH WILMINGTON STREET
RALEIGH, NC 27601-2825
FAX #: 919-733-4762

TITLE: NC Computer Skills Curriculum Lesson Plans

BY: Instructional Technology (formerly Computer Services Section)
Public Schools of North Carolina

DATE: 1994-1995

Computer Skills Curriculum

1

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 1)
1.3 Demonstrate personal responsibility in school activities.
1.4 Cooperate with and help others in classroom situations.
4.2 Predict the consequences of responsible and irresponsible action.
4.3 Elaborate on the need to apply rules fairly in the home, school and community.

Information Skills
1.1 The learner will explore a wide variety of reading, listening, and viewing resources and formats.
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 1)
1.2 Demonstrate respect for the computer work of others.

Title: Who owns this sentence?
Grade: 1
Competency 1.2: Demonstrate respect for the computer work of others.
Measure 1.2.1: As the teacher shows a story starter on the computer screen, contribute to finishing the story and identify your part as the only portion you have a right to change.

Materials Needed: Chalkboard or chart paper, colored markers (blue, red, green), computer with word processing program and LCD panel with overhead projector, prepared cards with animal names: duck and frog written in blue marker; cow and horse written in red marker; pig and dog written in green marker, printed story and crayons/markers.

Time: Three, fifteen minute sessions.

Activities

Pre-Activities:
With Students

1. Write a sentence on the chalkboard/chart paper and explain to the class that it is your work.
2. Select six students to form three groups with two students in each group.
   a. The green group gets the animal name cards written in green marker.
   b. The red group gets animal name cards written in red.
   c. The blue group gets animal name cards written in blue.
3. Say the word (on the card) as you give the card to the student and ask each child to think of a short sentence using that word. As the two children in the green group each say their sentences, write the sentence on the chart paper in green marker with the child's name beside the sentence.
4. Read the sentence and explain that this work belongs to this particular child. If anyone wants to change this sentence they must first ask permission of the creator/owner.
5. Continue this process until all the students with cards have sentences on the chart paper and the class understands that in order to change any sentence that they must be granted permission by its creator/owner.

Activity:

1. In a whole class or small group demonstration, use a computer and a word processing program to compose a story and read it aloud to the class. Explain that the story is your work; therefore, only you have the right to change these sentences.
2. Now ask the students to suggest words and sentences to add to the story.
3. When the story is complete allow only each contributing student to edit the specific portion of the story that he/she contributed.
4. Lead the students in a discussion of ownership and property to conclude that each one will respect the computer work of others.

Measure

Ask each student to color with a crayon or marker only the portions of a class story he/she has the right to change (i.e., the part he/she owns/contributed). Suggestion: Print the story triple-spaced with each student's name below his/her contribution.

Ethical Issues

Computer Skills Curriculum 2

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 2)
1.1 Identify and describe attributes of good citizenship.
1.2 Demonstrate good citizenship in classroom and school actions.
1.3 Compare good citizenship in the classroom and school to neighborhood and community citizenship.
4.1 Suggest and justify rules and laws for neighborhoods and communities.
4.2 Suggest the consequences of not obeying rules and laws.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 2)
1.2 Describe the right of an individual to ownership of his/her created computer work.

Title: Class, may I change this?
Grade: 2
Competency 1.2: Describe the right of an individual to ownership of his/her created computer work.
Measure 1.2.1: After contributing with other classmates to a story started on the computer screen, determine changes to make and request the author's permission to make the change.

Materials Needed: Computer with printer and word processing program; Case of the Missing Brownie story starter on a word processing file; Ownership cards; crayons.

Time: Three, fifteen minute sessions.

Activities

Pre-Activities:
With Students

1. Begin a discussion of ownership of computer work by telling the students this scenario:

   Who owns this work?

   Bobby wrote a story he called the Case of the Missing Brownies. He wrote the story on the computer. Cherie read the story. She liked the beginning of the story very much. She copied it into her computer to begin her own story. She did not ask Bobby if she could use his work.
2. Ask the students who owned the computer work. Have a few students tell why Cherie should not have used part of Bobby's story without asking him.

Activity:

1. In a whole class or small group setting with a computer with a word processing program, have several students each contribute one sentence to the story entitled The Case of the Missing Brownies (see handout for story starter to use in creating word processing file).
2. As you type each sentence, label it with the child's name who created it. Give that child an Ownership card to hold.
3. When there are five submissions, ask four other students to make changes in four of the sentences.

   Note: Ask permission of the child whose name appears beneath the sentence before making any changes. Explain that the original sentence is the property of the person who created it but the new, changed sentence belongs to both students. Have the student who provided the change share holding the Ownership card with the creator. One student should remain holding an Ownership card by himself.
4. After the four changes have been made, ask the class to identify who owns now each of the sentences that was added to the story.

Measure

After typing a story starter on the computer, ask the class for volunteers to create additional sentences. As each student's contribution is typed, have the class tell who should hold the Ownership card for that sentence. (For example, three students will need to hold the same Ownership card if they all three contributed to the same sentence.) Optional: (for the next day) Print out the final story with the name of each person under the portion they created. Give a copy to each student and have them color the portion they can change without asking permission of anyone.

The Case of the Missing Brownies

After the brownies had cooled, Mother cut them into squares. She placed them on a large colorful plate in the center of the kitchen table. Then she wrote this note for Bobby and Pam.

Dear children,
I hope you had a good day at school today. I have gone to visit with Grandmother Phelps for a few hours. Have some milk and brownies before you start your homework. I will be home by 5:30.
Love Mom.

P.S. Go outside and call Spot. I could not find him before I left home. I hated to leave without knowing where he was, but Grandmother was expecting me t 3:00.

Bobby and Pam smelled brownies as soon as they entered the back door. When they reached the kitchen they spotted the empty platter in the center of the table...

Story Completer (example)	Owner
Bobby read the note out loud to Pam.	Teacher
Mother will be home at 5:30. But where are the brownies?	(student)
	_____
	_____
	_____

Gr. 2, 1.2.1

Ownership

Ownership

Ownership

Computer Skills Curriculum 2

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 2)
1.1 Identify and describe attributes of good citizenship.
1.2 Demonstrate good citizenship in classroom and school actions.
1.3 Compare good citizenship in the classroom and school to neighborhood and community citizenship.
4.1 Suggest and justify rules and laws for neighborhoods and communities.
4.2 Suggest the consequences of not obeying rules and laws.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 2)
1.2 Describe the right of an individual to ownership of his/her created computer work.

Title: Our Personal Animals
Grade: 2
Competency 1.2: Describe the right of an individual to ownership of his/her created computer work.
Measure 1.2.2: Using a computer program, create a banner or draw a picture of an imaginary animal. Explain why your creation is personal property.

Materials Needed: Pictures of several children's characters; computer with drawing software (printer optional); for each child, crayons, markers, and paper; selection of imaginary animal parts (samples provided); Create-a-Part handouts (see sample).

Time: Three, fifteen minute sessions.

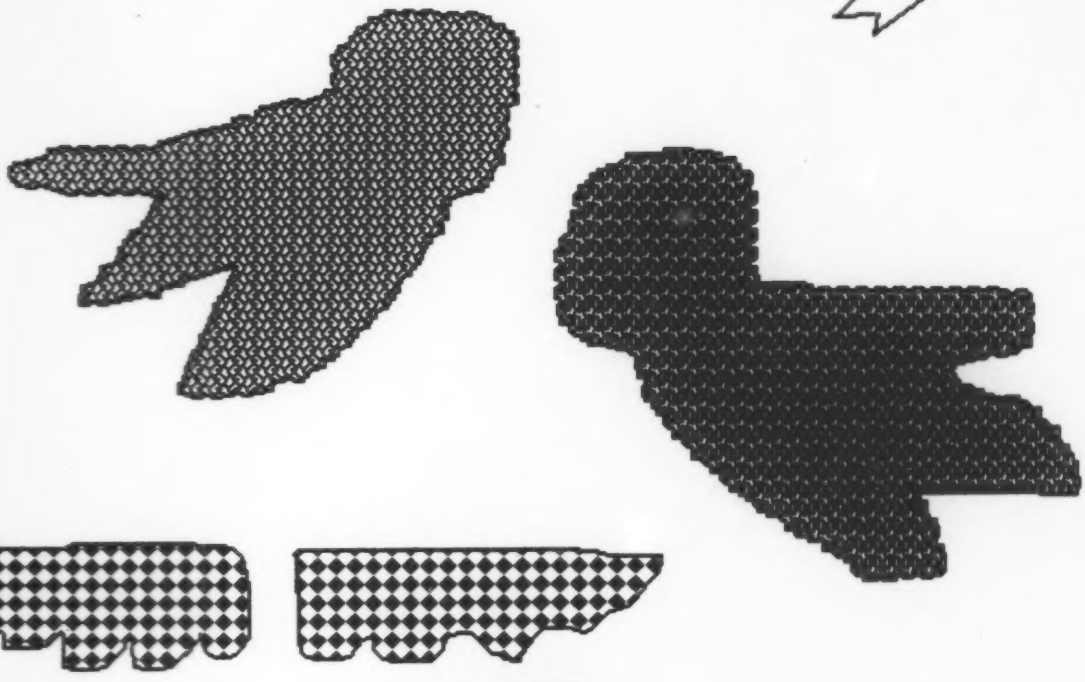
Activities

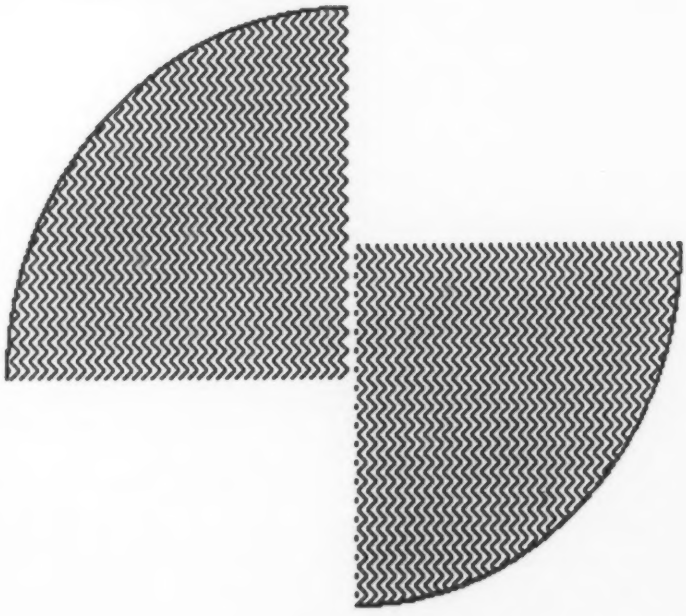
Pre-Activities:
With Students
1. Ask students to identify well-known characters (e.g., Muppets, Barney, Bugs Bunny, Power Rangers).
2. Discuss how the rights to use these characters are controlled by the person or persons who created them.

Activity:
1. In a whole class or small group setting, use computer software (such as a drawing program) to create a picture of an imaginary object. Tell the students about the picture and explain to them that this work is your property because you are the person who created it.
2. Provide each child drawing materials (crayons, markers, paper). Have each child draw an imaginary animal and write their name and one thing about their special animal at the bottom of the page. (Display "imaginary animal parts" for students to use for ideas in drawing an animal.)
3. Have volunteers displays their drawings and tell the class what is special about their animals.
4. Then, lead the students in a discussion of ownership and property by asking the students if you, the teacher, can change various parts of the drawings on display without asking the creators.
5. Discuss that each drawing is the personal property of the creator, that the creator "owns" the right to use and to change the drawing, and that others must ask permission to use or change the drawing.
6. Following this discussion of ownership and property, create a display of the original animals with the title "Our Personal Animals."

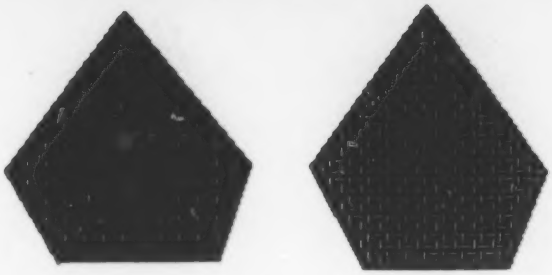
Measure
Provide each student a Create-a-Part handout to complete by drawing a part onto the animal and writing a sentence on why the creation is now personal property.

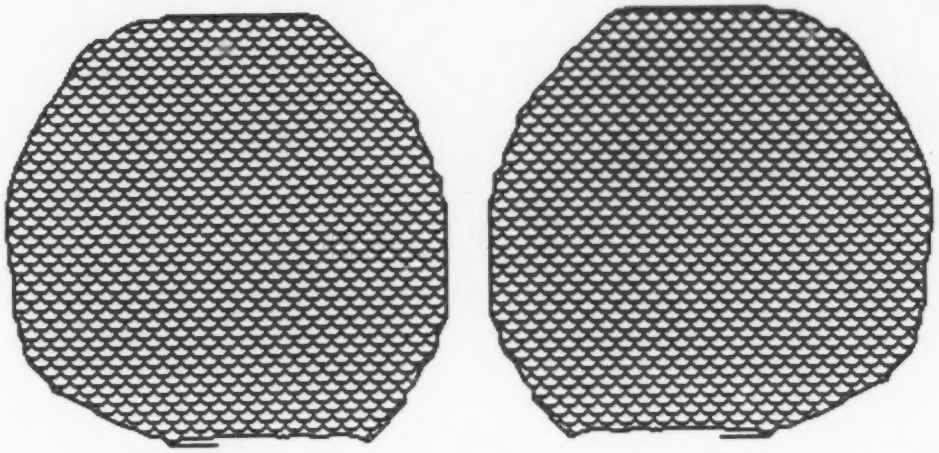
Wings

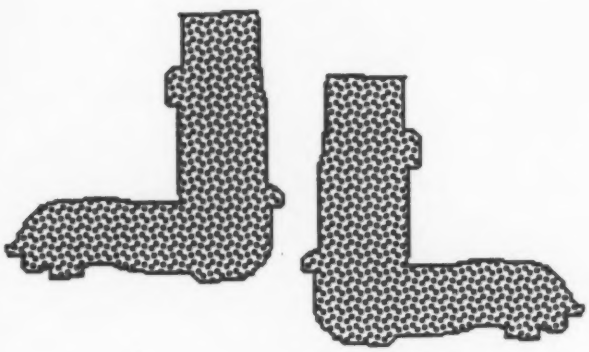


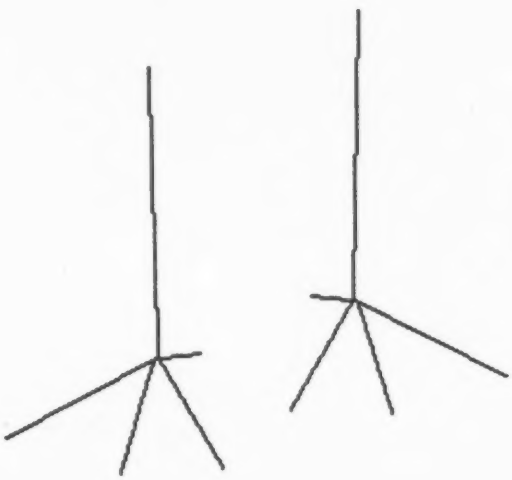


Feet

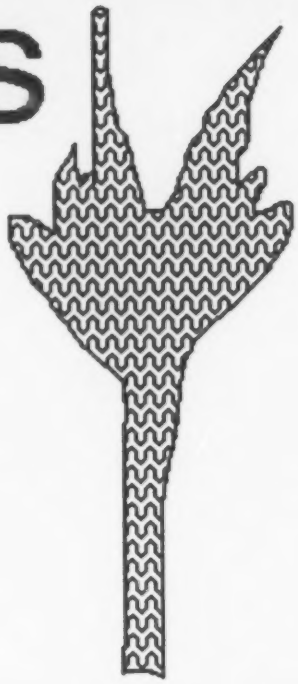


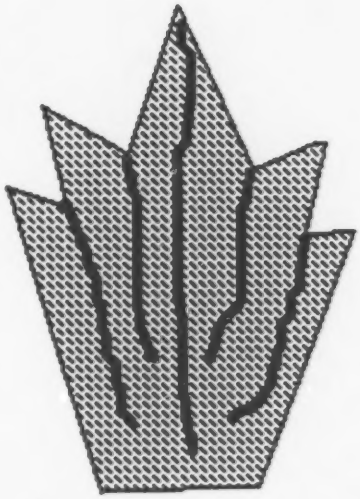


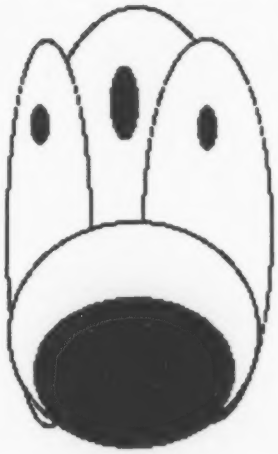


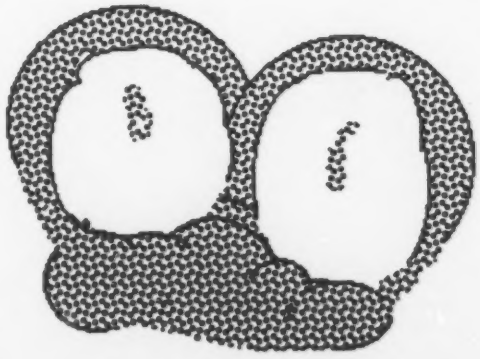


Tails

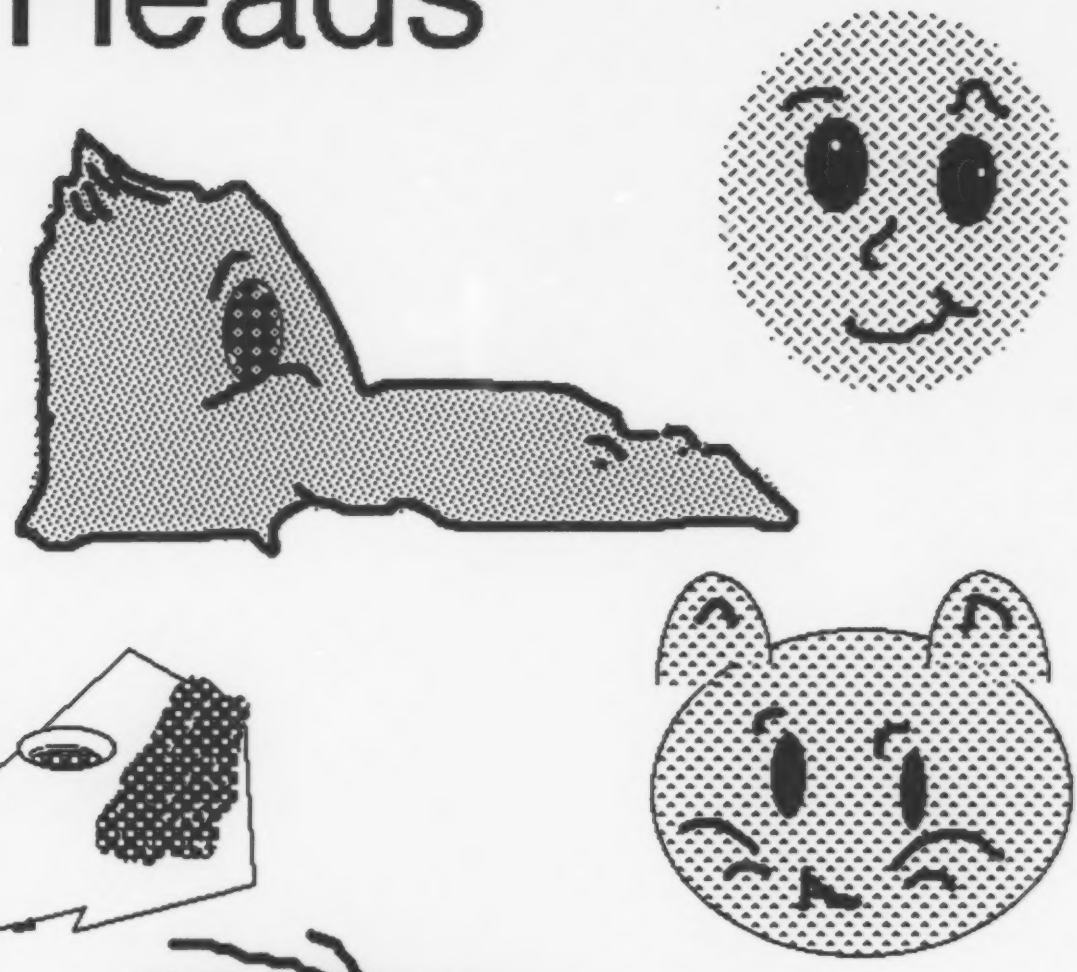




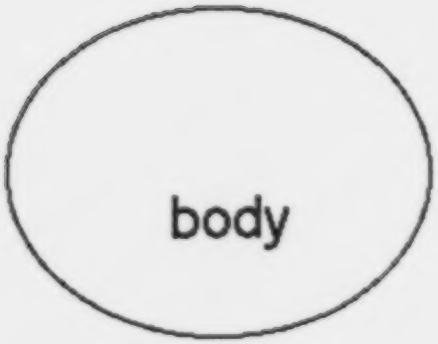




Heads



Create-a-Part



Add a part to your personal animal (or several parts). Write a sentence on why this is now your personal animal._____

Computer Skills Curriculum 3

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 3)
1.1 Identify attributes of good citizenship.
1.2 Cite skills of good citizenship.
4.2 Suggest responsible courses of action in given situations and assess the consequences of irresponsible behavior.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 3)
1.2 Explain that the copyright law protects what a person or a company has created and placed on a diskette.

Title: To Copy or Not to Copy. What is the Answer?
Grade: 3
Competency 1.2: Explain that the copyright law protects what a person has created and placed on a diskette.
Measure 1.2.1: Tell why it is against the law to make a copy of a copyrighted software program to give to a friend.

Materials Needed: Examples of copyright information from books and software packaging and of copyright violation from newspaper clippings (sample provided); a copy of the videotape, *Don't Copy That Floppy*, from the Software Publishers Association (1-800-388-7478); ICCE Policy Statement (sample attached).

Time: Three, thirty minute sessions

Activities

Pre-Activities:
With the Media Coordinator

1. Identify the most current copyright law and school policy that relate to the use of software.
2. Locate examples of copyright law statements on software packaging and of copyright law violations in newspapers.
3. Obtain a copy of the videotape, *Don't Copy That Floppy*.

Activity:

1. Show the students examples of the copyright law from software packaging. Ask several students to read the statements and tell what they think the statement means. Share with them the ICCE Policy in the *Don't Copy That Floppy* package.
2. Discuss with the students the school copyright policy, particularly on software. Compare it to the ICCE Policy.
3. Use the sentences below to have students determine if the character in each scenario is violating the copyright law for software and explain why. Discuss how the copyright law protects people who created the product.
   a. Mr. Jones bought a computer game. He made a copy of the diskette for his grandson.
   b. Harold was given a copy of software to use at home by his boss, who purchased it for that specific purpose.
   c. Bob's friend bought a word processing program for the Apple IIgs and made copies. He gave them to three of his best friends so they could write letters to him on their computers.
4. Show the first part of the videotape, *Don't Copy That Floppy*. Discuss "what" the copyright law protects.
5. Have students write a paragraph describing why they would NOT make a copy of a software program to give to a friend.

Measure
Have students make posters or cartoons to explain the copyright law as it pertains to computer software to share with students in earlier grades.

TERMS

Copyright Law

Ethical Issues

dation. "In 1994, tobacco control is a major mainstream health care issue."

To that end, the foundation has enlisted the American Medical Association to work with the anti-smoking grant recipients.

In a field where the tobacco industry regularly outspends tobacco opponents by huge margins, the Johnson Foundation's commitment is the largest philanthropic effort at tobacco prevention and control.

In states where citizen initiatives are permitted, the foundation hopes its money will be used to support groups that will seek higher cigarette taxes through referendums.

can reach a common cause," Scott Woodell of Chesapeake Beach, Md., said as fans caked in mud and longing for a shower and a good meal packed up their tents and sleeping bags Monday and straggled home.

The promoters had meticulous plans for distant parking lots and shuttle buses for people who paid $135 each for tickets. But about 200,000 tickets were sold and authorities estimated there were 350,000 people at the crowd's peak Saturday.

On Friday, fans waited for hours in parking lots because wristbands to identify those who

nearly 50,000 spaces were lost to haphazard parking, police estimated.

Some ticketholders arrived to find no room to park. Trooper Robert Gillespie said they were sent from lot to lot, and some may have given up.

Richard Kessel, executive director of the state Consumer Protection Board, said Monday that he will ask promoters to give refunds to people who could not get in.

Promoter John Roberts said no refunds were planned — because fans could keep their tickets intact as souvenirs,

the 2,900 portable toilets service was spotty and system fell apart as the ran out and vendors taking cash. There also w few booths to sell scri change it back into dollar the music was over.

Downpours Saturday noon, and again during smith's late-night concert dawn Sunday, made the g a mud pit.

"It was insanity. Lots and lots of drugs and t said Todd Ellis, 21, of Ma Ontario. "It was chaos. definitely worth it."

NATION BRIEFS

CALIFORNIA

Biopsy shows Simpson doesn't have cancer

LOS ANGELES — O.J. Simpson does not have cancer, his doctor said Monday.

Dr. Robert Huizenga said that a lymph node removed from the 47-year-old Simpson's armpit last week was "abnormally large" but no cancer was found.

Lab studies will continue to find the cause of the abnormality, described as a "proliferation of lymphocytes," the doctor said in a statement.

Simpson, 47, is awaiting trial on charges of murdering his ex-wife and her friend.

CALIFORNIA

Train hits, kills three in family

GLENDALE — A commuter train struck and killed a grandparent, parent and child who were taking a shortcut across railroad tracks Monday.

"The pedestrians . . . appeared out of nowhere," Metrolink spokesman Peter Hidalgo said. "The engineer repeatedly blew his horn and applied his emergency brakes."

The victims apparently were trying to get from the south side of the tracks to the north side shortly before 10 a.m. when they were struck by a train traveling 60 mph, Hidalgo said. The victims' names weren't disclosed.

PENNSYLVANIA

Woodstock workers hurt in bus crash

FARRELL — A Chicago-bound bus carrying security workers from Woodstock '94 crashed Monday in a chain-reaction accident. At least 25 of the 30 people on the bus were injured, one critically.

Police said the pileup involved four vehicles: an empty flatbed truck, followed by a tractor hauling a double trailer, the bus from Woodstock and a single tractor-trailer.

The bus were coming from the festival in Saugerties, N.Y. The staffers worked for Star Concert Securities of Chicago, which protected the stage and lighting equipment.

CALIFORNIA

Man goes to prison for pirating software

SAN FRANCISCO — A California man will become the first person in the country to go to prison for illegally copying computer software, officials said Monday.

Yu Jung Wu, also known as Joseph Wu, pleaded guilty last week to software piracy and money laundering in connection with the activities of his company, Abba Systemations Inc.

Assistant U.S. Attorney Stephen Meagher said the company, operating as Prosys Inc., sold about 17,000 counterfeit copies of Microsoft Corp's MS-DOS and Windows software from August 1992 until it was shut down in July 1993.

U.S. District Judge Vaughn Walker sentenced Wu to a year in prison and fined him $3,000. He also ordered Wu, an associate and the company to pay $340,000 restitution to Microsoft.

FROM WIRE REPORTS

Whitewater investi

L. Jean Lewis and two other officials in the agency's Kansas City office are having their conduct reviewed. The reason is unclear.

THE NEW YORK TIMES

WASHINGTON — An investigator with the Resolution Trust Corp. who began the inquiry into a failed Arkansas savings and loan that has erupted into the Whitewater investigation was placed on paid leave Monday while she undergoes an internal review of her conduct.

The employee, L. Jean Lewis, was suspended along with two other investigators, an official of the Treasury Department agency said.

The RTC, as the federal agency managing the savings and loan bail-outs, examines fail cial institutions to d whether anyone is lega for their collapse, said Katsanos, the agency' man.

But the reason behind Monday was unclear, a nos, citing a concern fo said he could not des nature of the accusation.

Katsanos said the paid absence for the three tors were intended to a for "an internal investig some matters that we concerning internal rule cedures. This is not puni

He said the suspen expected to last about t but could remain in effe nitely.

Suspended along wi were Richard Iorio, Lew diate supervisor, and th or, Lee Aunen.

Ad campaign to help launc

THE ASSOCIATED PRESS

NEW YORK — The female condom goes on sale for the first time this month at drugstore counters across the nation in a modest white box, with pages of instructions and 11 diagrams.

The manufacturer, Wisconsin Pharmacal Co. of Jackson, Wis., plans a $4 million ad campaign this year to sell the birth control device, which looks like a large male condom with soft plastic rings on either end.

The company settled on the name Reality and a decidedly serious ad campaign to emphasize the condom's role in preventing sexually transmitted d well as pregnancy. T was approved by the Drug Administration in

"We looked at name hold, Within, Beyond words and pretty pack roses or young coupl sunlight," said Mary A chief executive of Pharmacal's female h sion. But women wh Reality name felt it w serious product, she sa be marketed in a plain with a pink female sym

Leeper hopes 1 mill women will use the proc a year, a projection th

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(N & O, 8/16/94)

BEST COPY AVAILABLE

1987 Statement on Software Copyright
An ICCE Policy Statement

Background

During 1982-83, educators, software developers, and hardware and software vendors cooperated to develop the ICCE Policy Statement on Network and Multiple Machine Software. This Policy Statement was adopted by the Board of Directors of the International Council for Computers in Education (ICCE) in 1983, and was published and distributed. It has received support from hardware and software vendors, industry associations and other education associations. One component of the Policy Statement, the "Model District Policy on Software Copyright," has been adopted by school districts throughout the world.

Now, three years later, as the educational computer market has changed and the software market has matured, ICCE has responded to suggestions that the policy statement be reviewed by a new committee and revisions be made to reflect the changes that have taken place both in the marketplace and in the schools.

The 1986-87 ICCE Software Copyright Committee is composed of educators, industry associations, hardware vendors, software developers and vendors, and lawyers. All the participants of this new Committee agree that the educational market should be served by developers and preserved by educators. To do so requires that the ICCE Policy Statement be revisited very few years while the industry and the use of computers in education are still developing.

Responsibilities

In the previous Policy Statement, lists of responsibilities were assigned to appropriate groups: educators; hardware vendors; and software developers and vendors. The suggestion that school boards show their responsibility by approving a district copyright policy was met with enthusiasm, and many districts approved a policy based on the ICCE Model Policy. The suggestion that software vendors adopt multiple-copy discounts and offer lab packs to schools was likewise well received; many educational software publishers now offer such pricing. It is therefore the opinion of this committee that, for the most part, the 1983 list of recommendations has become a *fait accompli* within the industry, and to repeat it here would be an unnecessary redundancy.

Nevertheless, the Committee does suggest that all parties involved in the educational computing market be aware of what the other parties are doing to preserve this market, and that the following three recommendations be considered for adoption by the appropriate agencies.

School District Copyright Policy

The Committee recommends that school districts approve a District Copyright Policy that includes both computer software and other media. A Model District Policy on Software Copyright is enclosed.

Particular attention should be directed to item five, recommending that *only one* person in the district be given the authority to sign software licensing agreements. This implies that such a person should become familiar with licensing and purchasing rights of all copyrighted materials.

Suggested Software Use Guidelines

In the absence of clear legislation, legal opinion or case law, it is suggested that school districts adopt the enclosed Suggested Software Use Guidelines as guidelines for software use within the district. The recommendation of Guidelines is similar to the situation currently used by many education agencies for off-air video recording. While these Guidelines do not carry the force of law, they do represent the collected opinion on fair software use for nonprofit education agencies from a variety of experts in the software copyright field.

Copyright Page Recommendations

The Committee recommends that educators look to the copyright page of software documentation to find their rights, obligations and license restrictions regarding an individual piece of software.

The Committee also suggests that software publishers use the documentation copyright page to *clearly* delineate the users' (owners' or licensees') rights in at least these five areas:

1. How is a back-up copy made or obtained, how many are allowed, and how are the back-ups to be used (e.g., not to be used on a second machine at the same time)?

2. Is it permissible to load the disk(s) into multiple computers for use at the same time?

3. Is it permissible to use the software on a local area network, and will the company support such use? Or is a network version available from the publisher?

4. Are lab packs or quantity discounts available from the publisher?

5. Is it permissible for the owner or licensee to make copies of the printed documentation? Or are additional copies available, and how?

ICCE — Suggested Software Use Guidelines

The 1976 US Copyright Act and its 1980 Amendment remain vague in some areas of software use and its application to education. Where the law itself is vague, software licenses tend to be much more specific. It is therefore imperative that educators read the software copyright page and understand the licensing restrictions printed there. If these uses are not addressed, the following Guidelines are recommended.

These Guidelines do not have the force of law, but they do represent the collected opinion on fair software use by nonprofit educational agencies from a variety of experts in the software copyright field.

Back-up Copy: The Copyright Act is most unclear as it applies to loading the contents of one disk into multiple computers for use at the same time. In the absence of a license expressly permitting the user to load the contents of one disk into many computers for use at the same time, it is suggested that you *not* allow this activity to take place. The fact that you physically can do so is irrelevant. In an effort to make it easier for schools to buy software for each computer station, many software publishers offer lab packs and other quantity buying incentives. Contact individual publishers for details.

Local Area Network Software Use: It is suggested that before placing a software program on a local area network or disk-sharing system for use by multiple users at the same time, you obtain a written license agreement from the copyright holder giving you permission to do so.

The fact that you are able to physically load the program on the network is, again, irrelevant. You should obtain a license permitting you to do so before you act.

Model District Policy on Software Copyright

It is the intent of [district] to adhere to the provision of copyright laws in the area of microcomputer software. It is also the intent of the district to comply with the license agreements and/or policy statements contained in the software packages used in the district. In circumstances where the interpretation of the copyright law is ambiguous, the district shall look to the applicable license agreement to determine appropriate use of the software [or the district will abide by the approved Software Use Guidelines].

We recognize that computer software piracy is a major problem for the industry and that violations of copyright laws contribute to higher costs and greater efforts to prevent copying and/or lessen incentives for the development of effective educational uses of microcomputers. Therefore, in an effort to discourage violation of copyright laws and to prevent such illegal activities:

1. The ethical and practical implications of software piracy will be taught to educators and school children in all schools in the district (e.g., covered in fifth grade social studies classes).

2. District employees will be informed that they are expected to adhere to section 117 of the 1976 Copyright Act as amended in 1980, governing the use of software (e.g., each building principal will devote one faculty meeting to the subject each year).

3. When permission is obtained from the copyright holder to use software on a disk-sharing system, efforts will be made to secure this software from copying.

4. Under no circumstances shall illegal copies of copyrighted software be made or used on school equipment.

5. (Name or job title) of this school district is designated as the only individual who may sign license agreements for software for schools in the district. Each school using licensed software should have a signed copy of the software agreement.

6. The principal at each school site is responsible for establishing practices which will enforce this district copyright policy at the school level.

The Board of Directors of the International Council for Computers in Education approved this policy statement January,1987. The members of the 1986 ICCE Software Copyright Committee are:

Sueann Ambron, American Association of Publishers
Gary Becker, Seminole Co. Public Schools, Florida
Daniel T. Brooks, Cadwalader, Wickersham & Taft
LeRoy Finkel, International Council for Computers in Education
Virginia Helm, Western Illinois University
Kent Kehrberg, Minnesota Educational Computing Corporation
Dan Kunz, Commodore Business Machines
Bodie Marx, Mindscape, Inc
Kenton Pattie, International Communications Industries Association
Carol Risher, American Association of Publishers
Linda Roberts, US Congress — OTA
Donald A. Ross, Microcomputer Workshops Courseware
Lary Smith, Wayne Country Int. Schl. Dist., Michigan
Ken Wasch, Software Publishers Association

In June 1989, the International Council for Computers in Education (ICCE) merged with the International Association for Computing in Education (IACE) to form the International Society for Technology in Education (ISTE). *Permission to reprint this document is granted.*

ISTE, 1787 Agate Street, Eugene, OR 97403-1923

Computer Skills Curriculum 3

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 3)
1.1 Identify attributes of good citizenship.
1.2 Cite skills of good citizenship.
4.2 Suggest responsible courses of action in given situations and assess the consequences of irresponsible behavior.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 3)
1.2 Explain that the copyright law protects what a person or a company has created and placed on a diskette.

Title: ***Don't Copy That Floppy***
Grade: 3
Competency 1.2: **Explain that the copyright law protects what a person has created and placed on a diskette.**
Measure 1.2.2: **Role play situations that involve illegal copying of another person's work or software. Discuss why copying or receiving such software is wrong.**

Materials Needed: Examples of copyright information from videotapes, books, and software for a display or bulletin board; a copy of the videotape and poster, *Don't Copy That Floppy*, from the Software Publishers Association (1-800-388-7478).

Time: Two, thirty minute sessions.

Activities

Pre-Activities:
With the Media Coordinator
1. Locate the videotape, *Don't Copy That Floppy* .
2. Contact the Software Publishers Association to determine new materials available.

Activity:
1. View and discuss the videotape, *Don't Copy That Floppy* . Have students identify two results of making illegal copies of a software program.
2. Have students read examples of copyright information found at the beginning of books, videotapes, and software. Discuss the different types of copyrighted software, including public domain, freeware, and shareware.
3. As a group, discuss what these examples mean and how they protect the creator and his work; then place the examples on a bulletin board entitled *Don't Copy That Floppy* . If possible, obtain the *Don't Copy That Floppy* poster to add to the bulletin board or display.
4. Have students use a word processing program to write a
   paragraph, rap, song, poem, or story
   describing how they would feel if someone copied computer work or software that they had created.
5. After reviewing these documents, have several of the students read their work to the entire class.

Measure
Divide students into groups of 3-4 students. Have the students work together to create and perform a skit that demonstrates
- why people should not copy software programs

or
- that copying the computer work of others is wrong.

TERMS

Copyright Law
Freeware
Public Domain Software
Shareware

Ethical Issues

Computer Skills Curriculum

4

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 4)
2.3 Analyze economic, social and political situations which involve ethical and moral dilemmas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing

Computer Skills: (Gr. 4)
1.3 State that violation of the copyright law is a crime.

Title: What is the School's Rule on Copyright?
Grade: 4
Competency 1.3: State that violation of the copyright law is a crime.
Measure 1.3.1: After the school media coordinator describes to the class the school's rules about copyright, write a paragraph or make a poster encouraging students to obey the school's copyright rules.

Materials Needed: Poster paper, markers, transparency master of Examples of Copyright Violations, overhead projector.

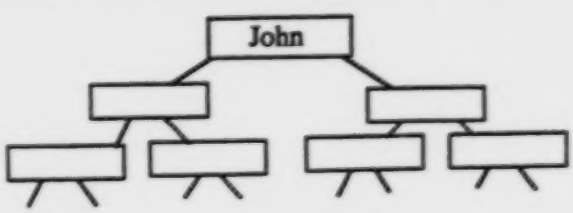
Time: Three, thirty minute sessions.

Activities

Pre-Activities:
With the Media Coordinator
1. Locate the school's rules about copyright.
2. Plan a time for the Media Coordinator to describe these rules to the students.

With Students
1. Ask each student to write what he or she thinks is the school's rule on copyright.

Activity:
1. Have the media coordinator make a presentation about copyright and the school's rules on copyright. Have each student compare their statement of the school's rules (in the Pre-Activity) to what they have just learned.
2. Use the following example to discuss the results of violating the copyright law: John buys a program disk and brings it to school to let two friends copy it. Then each one lets two friends make copies. If this pattern continues three times more, how many illegal copies will exist? (Use the diagram below for discussion. Ans: 62)



3. Have students brainstorm school situations and behaviors that are possible violations of the copyright law. Use the transparency Examples of Copyright Violations.
4. Have students work in groups to make a poster encouraging students to obey the school's copyright rules. Display student work in a common area to increase awareness among students and school personnel.

Measure
Have students discuss and write a "Copyright Pledge" for students at their school. Distribute to other classes.

Examples of Copyright Violations

1. Tom bought a piece of commercial software. He made some changes to the program. Then he sold the changed program to a local business as one he had developed.

2. Betty copied school software off of the school computer after school yesterday. She took it home and installed it on her home computer.

3. Sally removed a label from a diskette belonging to the school media center. She replaced it with a label with her name on it.

4. Buddy made copies of his personal homework file and gave them to his friends.

5. Michael brought a copy of his game diskette from home. He loaded it on the lab computer so he and his friends could play at school.

Computer Skills Curriculum 5

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 5)
2.3 Analyze economic, social and political situations which involve ethical and moral dilemmas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 5)
1.3 Describe the need for protection of software and hardware from vandalism.

Title: Effects of Vandalism
Grade: 5
Competency 1.3: Describe the need for protection of software and hardware from vandalism.
Measure 1.3.1: Participate in a brainstorming session on the need for protection of hardware and software from vandalism and write a brief story or essay about the possible consequences of such vandalism.

Materials Needed: Poster paper, markers, presentation software, stackware (Hypercard, LinkWay Live, HyperStudio, etc.); video equipment (optional); newspaper clippings concerning computer-related vandalism (sample attached); handout for each student (Computer-related Vandalism).

Time: Three or four, thirty minute sessions.

Activities

Pre-Activities:
1. Collect newspaper clippings concerning computer-related vandalism.
2. Develop examples of computer-related vandalism using school or community topics.
   Examples: illegal changing of student grades on the computer at the local university; accessing information on someone else's bank account; changing the software program code for the price of videotapes at the video store; removing cables on the library card catalog computer system.

Activity:
1. Use examples of vandalism of hardware or software to discuss "What is computer vandalism?" Have the students suggest reasons why there is a need to protect school hardware and software from vandalism.
2. Divide the class into four cooperative groups and give each group an example of computer vandalism.
3. Provide each group with a Computer-related Vandalism handout.
4. Direct the groups to discuss the example of computer vandalism and to decide who is to complete the handout for the group.
5. Have each group complete the form with an emphasis on consequences and long term effects and determine how to present their findings to the class using presentation software, stackware, videotape, or posters.
6. Provide time for each group to develop and present their findings.

Measure
Have students use a computer and a word processing software to write an example of vandalism of either hardware or software. Instruct them to identify possible victims and describe the effects of the vandalism on these individuals.

TERMS

Computer-related Vandalism

Ethical Issues

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(N & O, 4/27/94)

reated early TV programs

...ts of a different lyricist or ...poser each week, often with ... artist as guest. It aired on ... in 1950.

...r. Kilian, who died Monday, ... created ABC's "The Mary ...tline Children's Show" in 1951 ... produced the syndicated ad...ture series "Terry and the ...ites" in 1952.

He also produced the long-running, scriptless "Studs' Place." In that show, writer Studs Terkel presided over an affable program of songs and stories.

Mr. Kilian left ABC in 1953 to become an advertising executive in New York, and later ran his own ad agencies in Fort Lauderdale, Fla., and Atlanta.

...Surviving: wife, Mary Elyse Sears; daughter and son-in-law, Mary Sears and Charles Pettus of Durham; grandson and wife, Stephen, Kelly Pettus of Durham; brothers, M.O. Sears of Goldsboro, Daniel Sears of Raleigh, John Sears of Cary; sisters, Pansy Herndon of Cary, Margaret Watson of Durham, Rachel Yates of Shelby.

The family will receive friends from 7-8:30 p.m. Wednesday, Mitchell Funeral Home, Glenwood Avenue.

In lieu of flowers, memorials may be made to Hospice of Wake County, 4513 Creedmoor Road, Raleigh, N.C. 27612.

Montgomery Co. School System.

Surviving: son, Dr. Edward R. Burt III of Cary; brother, William Watkins of Norwood; sister, Helen Ligon of Charlotte; grandsons, Andrew and Edward Wesley Burt.

Family will receive friends 7-9 p.m. Thursday, April 28, 1994 in the Phillips Funeral Home, Star.

Memorials: Save the Old School, Attn: Hal Scott, P.O. Box 189, Biscoe, N.C. 27209

J. LEONARD MARCOM

FUQUAY-VARINA — Funeral service will be held 2 p.m. today, Sugg Funeral chapel. Burial, Greenlawn Memorial Gardens.

...You are truly missed. This year has seemed like a lifetime. So much has happened in my life I'd give anything to tell you but I have a feeling you already know. Sure hope heaven is as wonderful as they say. I'm sure you're keeping things organized and perky up there. We'll mom I just wanted to let you know that we're surviving. I miss you so much and can't wait till the day comes that I can give you a big hug. Until then I will keep you in every thought and prayer. I love you and miss you more than words can say.

Your favorite daughter,
Alexandra M. Goehl

ATTENTION SHRINERS

The AMRAN Temple A.A.O.N.M.S. regular stated meeting will be held at the Temple, Hwy. 50, 7 miles north of Cuttbrae on Wednesday, April 27, 1994. Dinner at 6:30, meeting at 7:30.

Jim Covington, Potentate
R.E. Marshburn, Recorder

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...s, what Medicare does and ...insurance works, and how to ...Care Plan.
...Sanderson High School, 5500 ...from 7:00 8:30pm. There is ...rkbook in which to make ...g is limited.
...School at 881-4800
...epts at 787-7067.

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THE NEWS & OBSERVER

Student charged with computer fraud

FROM STAFF REPORTS

RALEIGH — An electrical engineering student at N.C. State University was arrested Tuesday on computer felony charges.

Patrick Christian Lyerly, 21, of Morehead City, was charged with "accessing a computer, computer system and/or a computer network for the purpose of devising a scheme to defraud by means of false or fraudulent pretenses or representations," according to the arrest warrant.

The offense occurred about April 12, the warrant said.

The State Bureau of Investigation led the probe that resulted in Lyerly's arrest, said Larry Ellis, a spokesman for NCSU's public safety department.

The SBI director on the case, Curt Ellis, refused to provide any details.

Lyerly was being held in the Wake County Detention Center pending his release to the custody of his mother, Magistrate Jerry Saferight said.

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Computer-related Vandalism

Example of Vandalism

Consequences/Long-Term Effects

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 6)
2.3 Analyze economic, social and political situations which involve ethical and moral dilemmas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 6)
1.2 Identify examples of copyright law violations and possible penalties.

Computer Skills Curriculum 6

Title: **What is really a Copyright Law Violation?**
Grade: **6**
Competency 1.2: **Identify examples of copyright law violations and possible penalties.**
Measure 1.2.1: **Given a list of actions, identify the ones that are violations of copyright laws.**

Materials Needed: Clippings and articles about copyright law as it pertains to violations and penalties.

Time: Five, thirty minute sessions.

Activities

Pre-Activities:
With the Media Coordinator

1. Locate material on copyright law violations and possible penalties. (Sources: Software Publishers Association, Piracy Hotline: 1-800-388-7478).
2. Schedule a time for the Media Coordinator to discuss copyright law violations and possible penalties.

Activity:

1. Have the Media Coordinator make a presentation on copyright law, focusing on violations and penalties. Inform the students of the SPA Piracy Hotline.
2. Assign students to work in teams to research copyright law violations pertaining to computer software and possible penalties.
3. Have each team present their findings to the class and lead the class in a discussion about copyright violation and penalties.
4. Divide the class into small groups to discuss the issue:
   If an employer becomes aware that the copyright law is being violated by his employees, what steps do you think he should take?
6. Ask each group to report their decision.

Measure

Given a list of actions, have students identify the ones that are violations of the copyright law. Then, divide the class into teams. Have each team develop and present one scenario to the class that portrays a specific copyright violation. After the presentation, the team is to lead the class in a discussion of this type of violation and the possible penalties.

TERMS

Copyright Law
Piracy

Ethical Issues

ISSUES
SKILLS
APPLICATION

Computer Skills Curriculum

6

Title: Violators versus Authors
Grade: 6
Competency 1.2: Identify examples of copyright law violations and possible penalties.
Measure 1.2.2: Work in a group to make a video illustrating the consequences of violating copyright law. Dramatize interviews with both violators and authors of created work, including discussion of possible penalties for violation (e.g., destruction of the illegal copy, award of money to the author, large fines, jail sentences).

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Social Studies: (Gr. 6)
2.3 Analyze economic, social and political situations which involve ethical and moral dilemmas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 6)
1.2 Identify examples of copyright law violations and possible penalties.

Materials Needed: Articles about copyright law as it pertains to computer software and hardware; video camera, videotape for each team, VCR and monitor.

Time: Six class sessions plus varying times for filming by teams.

Activities

Pre-Activities:
With the Media Coordinator
1. Ask the Media Coordinator to make a presentation on copyright law, focusing on software and hardware.
2. Obtain resources on the copyright law for the students to use.

Activity:
1. Have the Media Coordinator present information on the copyright law and review the resources available for the students to use.
2. Assign students to work in teams to research copyright law violations pertaining to computer software and possible penalties.
3. Have the teams present findings to the class and lead class discussions about copyright violations and penalties.
4. After the class discussions, have each team (or new teams) select members for production roles of producer, director, camera operator, props handlers, script writers, and actors.
5. Have each team develop a video production that dramatize interviews with violators and authors of created work, including discussion of possible penalties for violation (e.g., destruction of the illegal copy, award of money to the author, large fines, jail sentences).
6. Hold a "film festival" to show the video productions.

Measure
Have each student write a response to the following statement:

"Why should there be any penalty for making illegal copies of a software program I purchased? I paid for it; it is mine to use as I please."

TERMS

Computer-related Vandalism

Ethical Issues

Computer Skills Curriculum

7

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 7)
1.2 Identify, as intellectual property, work created using a computer.

Title: Who Deserves Credit for This Work?
Grade: 7
Competency 1.2: Identify as intellectual property, work created using a computer.
Measure 1.2.1: Contribute one item (e.g., original drawing, scanned art, poems, stories, computer program listings) that represents intellectual property to a bulletin board entitled WHO DESERVES CREDIT FOR THIS WORK? Label each item with the name of the person or organization who owns each work.

Materials Needed: Bulletin board space entitled "Who Deserves Credit for this Work?;" collection of sample items in each of these categories: original drawing, scanned art, poems, stories, and computer program listings.

Time: Two, thirty minute sessions.

Activities

Pre-Activities:
1. Collect sample items for the bulletin board: art work, printed text, computer listings, etc..
2. Prepare a bulletin board space with the title: "Who Deserves Credit for this Work?."

Activity:
1. Conduct a class discussion about intellectual property with the sample items as focal points. Determine who deserves credit for each work.
2. Place the sample items on a bulletin board and label who should receive credit for each work.
3. Divide the class into 4 teams to participate in a scavenger hunt.
4. Instruct each team to work cooperatively to collect two items to represent each of these categories: original drawing, scanned art, poems, stories, computer program listings. Examples or locations might include:
   - art classroom or classwork from fellow students
   - clip art software (Print Shop)
   - print shop/graphics center
   - scanned art from a clip art book
   - poems from books or student class work
   - stories from books/magazines or student class work
   - computer program listings of programs written by students or teachers
5. When the teams have collected their items, direct each team to determine who deserves credit for each work. Then, have the teams select the item that best represents each category and place it on the bulletin board with a label stating the appropriate credit.

Measure
Have each student write a paragraph or story that explains how s/he would feel if someone sold for profit work s/he created.

TERMS
Intellectual Property

Ethical Issues

Computer Skills Curriculum 7

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Information Skills:
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 7)
1.3 Discriminate between ethical and unethical access to information stored on a computer system.

Title: Ethical Use of Private Data
Grade: 7
Competency 1.3: Discriminate between ethical and unethical access to information stored on a computer system.
Measure 1.3.1: Interview a worker who handles private computerized records (e.g., SIMS secretary, nurse, bank teller). List examples of ethical and unethical access.

Materials Needed: Sample printout of private computerized data, such as SIMS (student information) reports.

Time: Three, thirty minute sessions.

Activities

Pre-Activities:

1. Arrange for students to interview the school secretary, a nurse, a bank teller, or other individual who handles confidential or private computerized data.
2. Obtain a sample printout or a list of the kinds of information they manage on a daily basis. From this individual, determine who has access to the data and what safeguards are in place to protect the confidentiality of the data.

Activity:

1. Use a SIMS (or similar school student data) sample printout to help students identify the kinds of data contained on the SIMS computer.
2. Engage the class in a discussion of the kinds of data managed and who has access to this SIMS data. Include questions on the difference in ethical and unethical use of computer data.
3. Discuss methods used to safeguard confidential information in a database.

Ethical Access Examples:

1. your own medical data
2. your own banking or bill-paying records
3. requests for wedding gifts on a department store computer
4. catalog of store products on an online computer
5. library resources on an online computer

Unethical Access Examples:

1. medical records on other people without their permission
2. credit reports of a family friend without his permission
3. school grades of people you do not know
4. military troop movements on a confidential armed forces computer file

Terms

Ethical
Unethical

4. Divide students into work groups to develop a set of questions and conduct interviews with workers who handle private computerized records. (See Pre-Activity.) Provide time for the interviews.
5. Have each work group present their findings to the class.
6. Create a class list of examples of ethical and unethical access to of data. Have students clearly identify why and how specific practices are unethical.

Measure

Using the same work groups, ask each group to write a code of ethics for dealing with computer data.

Computer Skills Curriculum

8

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills (Gr. 8)
1.2 Distinguish between different types of data as to which are public and which are private.

Title: **Public or Private**
Grade: **8**
Competency 1.2: **Distinguish between different types of data as to which are public and which are private.**
Measure 1.2.1: **Given a list of several types of information, categorize which should/should not be readily available to others in a database (e.g., name, age, height, weight, favorite color, number of siblings, favorite music group, preferred pizza topping).**

Materials Needed: School database printouts, such as media center resources; sample article on "hackers."

Time: Three, thirty minute session.

Activities

Pre-Activities:
1. From the media coordinator and/or guidance counselor, obtain a sample printout to demonstrate categories of information managed.
2. Determine who has access to the information and what methods are used to safeguard the information.

Activity:
1. Give students a list of several types of information.
2. As a class, discuss and determine which information should or should not be readily available to others in a database. For example, name, age, height, weight, favorite color, number of siblings, favorite music group, preferred pizza topping.
3. Create a class list of information that should be private about any student in your school.
4. Have several students find examples in newspapers and magazines of private information being made public and describe the consequences. Use these to stimulate a class discussion of privacy. (See example: "International hackers find easy pickings on Internet".)
5. Discuss methods to ensure information privacy for an individual.

Measure
Have students use a computer system and word processing software to write an opinion/reason paper on one of the topics:

1. when privacy is needed for computer data and why.
2. what personal data should be private and why.
3. how technology has been one cause of privacy problems but can be used to solve such problems.

TERMS

Private Data
Public Data
Hacker

Ethical Issues

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Member of Emily Stamper's family wait for word on the search from Warren County rescue workers.

killed instantly in the crash. Others fear she may have drowned. A few think she may still be alive somewhere on this resort lake.

Sandy Stamper of Wendell.

SEE SEARCH, PAGE 4A

leaving 14 million Americans still uninsured. If so, it would mean that a controversial provision that could require businesses to help pay for workers' insurance would never be put into effect.

SEE HEALTH, PAGE 10A

International hackers find easy pickings on Internet

Criminals use the Internet to steal business data and personal information such as credit card numbers.

BY MARK GUIDERA
THE BALTIMORE SUN

/etc./password.

Those 15 keystrokes, flashing across a computer screen in an Ellicott City, Md., barn last month, put Jamie Clark and two co-workers on a cyberspace hunt for international computer criminals in the fast-evolving world of Internet crime.

"I knew it was really bad trouble right away," recalled Clark, 31, as he watched a hacker trying to worm his way into the password file of the system Clark had set up to sell Internet access to home and small-business computer users in the Baltimore-Washington area.

What he found was worse than he had suspected. An international ring operating out of Sweden and several European countries had used stolen telephone calling card numbers to call the United States and set up accounts on ClarkNet, Clark's Internet access system. They paid by using stolen credit card numbers.

Free speech may face showdown on Internet frontier. ▶ 1B

Once on the Internet, the hackers were free to attempt to crack and vandalize other systems.

Computer security experts now think the group wanted access to university computers to steal research that could be sold on the black market around the world.

They say this kind of attack is increasingly common as criminals use the wide-open Internet to steal not only business data, but also important personal information — such as credit card numbers — that everyday users store or pass through the Internet.

"This kind of thing is happening more and more each year. A lot of people think the Internet is this wonderful place where everyone is communicating and acting responsibly. But people have got to realize there are some devious people out there with superior hacker skills," said Doug Tygar, a computer scientist at Carnegie-Mellon University in Pittsburgh and a member of the Computer Emergency Response Team, a group that investigates electronic break-ins.

The hackers were successful in at least one confirmed case, destroying and possibly stealing computer files at Clarkson University in Potsdam, N.Y., according to Lori Carrig, ClarkNet's security officer, who is assisting a government-funded computer security panel and the U.S. Secret Service with an investigation.

As many as 20 other universities may have been targeted, she said. ClarkNet was able to alert

SEE HACKERS, PAGE 10A

NDER WAY

s didn't share h customers

Y READY
WRITER

Carolinians who receive making co-payments on above what the insurance

from price agreements rs and hospitals that lower leaving patients to pay a

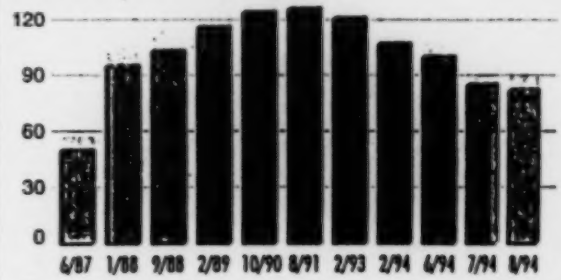
actice have been filed with f Insurance, and state to force insurers to share uts with the patients. e these discounts will be

E, PAGE 10A

Fewer flights

After reaching a peak of 127 daily jet departures from RDU, American Airlines has been cutting back. American is expected to announce further restrictions soon.

Number of daily flights



Compiled by Justin Scroggs — The News & Observer

American plans more hub cuts

Airline officials confirm that flights likely will be slashed in mid-December, possibly at RDU.

BY DUDLEY PRICE
STAFF WRITER

American Airlines, which just two months ago cut jobs and jetliner flights at its troubled hub at Raleigh-Durham International Airport, is planning another round of reductions.

Airline officials on Tuesday confirmed that more cuts are likely in mid-December, raising questions about the future of the hub.

"Based on the fact that we are continuing to downsize the airline, it's a reasonable assumption [that more jet flights will be deleted]," said John Ross, manager of the RDU hub. No decision has been made on how many flights might be cut, he said.

But Art Victorine, manager of American's hub in Nashville, said in a speech to that city's Mortgage Bankers Association late last week that daily jet flights at the RDU hub would be reduced to the "mid 60s," according to an article in Friday's Nashville Tennessean.

That would be a reduction of 18 jet flights from the current number of 83.

Victorine did not return telephone calls. And American spokesman Tim Smith said Victorine was wrong because no decision has been made. Ross said the size of the expected reduction has been overstated.

American, which has more flights from RDU than any other airline, already offers

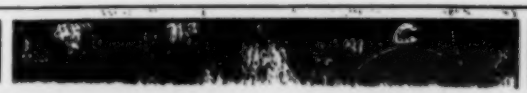
SEE HUB, PAGE 10A

INSIDE
Food memories of French flight. ▼ 1E

ODAY

Passing baton: Kenneth W. Starr starts work as the independent counsel

WEATHER



Business 1D | Lenders 7
Classified 1G | Metro 1
Comics 8E | Sports 1

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HACKERS

CONTINUED FROM PAGE 1A

'Computers are coming more and more into the home, and as they do, people need to think about how they might be affected socially. Unless they have good security, their privacy may be at risk.'

Lori Carrig
ClarkNet's security officer

Carnegie-Mellon University, where defense research is conducted, that one intruder had some of the school's passwords in his file.

ClarkNet uncovered all of the bogus accounts and canceled them, but its experience illustrates a growing problem.

In 1992, 773 incidents were reported to the Computer Emergency Response Team. The number doubled in 1993, and this year CERT estimates it will receive more than 2,300 reports.

"Computers are coming more and more into the home, and as they do, people need to think about how they might be affected socially. Unless they have good security, their privacy may be at risk," Carrig said.

She noted that with an Internet user's password, a criminal can masquerade electronically as his victim, order merchandise from vendors in the Internet's new electronic malls or attempt other crimes while logged on as the victim.

CERT does not divulge the sites reporting break-ins or details of its investigation. But it estimates that fewer than 10 percent of such incidents are ever reported.

"Many people are embarrassed to report that their security was breached," said Terry McGillen, a professor at Carnegie-Mellon's Software Engineering Institute and a CERT panel member.

One problem, security experts say, is a feeling among some longtime, traditional hackers that all information should be freely shared. There is even a magazine, 2600, and a computer bulletin board by the same name, with articles explaining how to break into various systems.

But as the Internet grows into a major conduit for sensitive information of all kinds, these security experts are concerned about the lack of global uniformity in investigating and prosecuting criminal activity.

"The public perception of people who break into computer systems, unfortunately, is that they are either geniuses or misguided kids showing off. Nothing could be further from the truth. They are criminals, plain and simple," said Eugene Spafford, an associate professor with the Computer Operations, Audit and Security Technology Project at Purdue University and an Internet security authority.

Spafford and others agree that the ClarkNet incident shows how difficult it is to investigate and prosecute cybercrime.

Major computer system break-ins are now investigated by the FBI and Secret Service, which have computer crime units. The U.S. Department of Justice has also launched a computer crime unit to specialize in prosecuting cases under a federal computer crime law.

But international crime is harder to deal with. ClarkNet has done much of the sleuthing on its own case.

"In many countries in Europe and elsewhere, there are no laws against breaking into computer systems. The attitude among some people overseas is that information going back and forth over computers is literally considered free to everyone," Tygar said.

Meanwhile, for individual users, the best defense is a password that is unlikely to be discovered.

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(N & O, 8/10/94)

Computer Skills Curriculum

8

ISSUES
SKILLS
APPLICATION

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 8)
1.2 Distinguish between different types of data as to which are public and which are private.

Title: Its an Issue of Privacy!
Grade: 8
Competency 1.2: Distinguish between different types of data as to which are public and which are private.
Measure 1.2.2: Word process a letter to the editor of the school newspaper on why student test scores, attendance, or detention/ suspension records should be private data.

Materials Needed: Media resources on privacy of data.

Time: Five, thirty minute sessions.

Activities

Pre-Activities:
With the Media Coordinator
1. Schedule time to research a variety of media for information about privacy, particularly as it relates to computer data.
2. Create a bibliography or a display of these materials.

Activity:
1. Review and discuss types of information, focusing on which are private and which are public.
2. Discuss possible consequences of public disclosure of private information.
3. Divide students into teams to discuss and research, using the media center materials, issues of privacy when dealing with computer data.

   For example:
   1. consequences of keying mistakes when working with private data in a computer database,
   2. groups scanning databases for connections of otherwise separate pieces of private data,
   3. computer matching programs to identify individuals or target populations of people with specific characteristics.
4. After each team has completed their research, have each team use their findings to develop three questions for a survey on privacy issues.
5. Compile these team questions into a class survey form that addresses relevant privacy issues. Determine how to best conduct a survey of other students using the class survey form.
6. Conduct the survey, compile and analyze the survey results.
7. Use a computer graphing program to chart and present the findings.

TERMS

Private Data
Public Data

Measure
Have students use word processing software to write a letter to the editor of the school newspaper on why student test scores, attendance, or detention/suspension records should be private.

Ethical Issues

ISSUES
SKILLS
APPLICATION

Computer Skills Curriculum

8

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 8)
1.3 State the need for protection of software and hardware from computer viruses.

Title: What is a Computer Virus?
Grade: 8
Competency 1.3: State the need for protection of software and hardware from computer viruses.
Measure 1.3.1: Find articles about computer viruses in newspapers or in a print/electronic magazine index. Report findings to the class. Discuss ways of protecting against such viruses.

Materials Needed: Media resources on computer viruses.

Time: Five, thirty minute sessions.

Activities

Pre-Activities:
With the Media Coordinator
1. Schedule time to research a variety of media for information about computer viruses.
2. Create a bibliography for students to use.

Activity:
1. Identify and discuss the term, "computer virus." Compare a virus to a "worm" or "logic bomb."

   computer virus: A computer program that can reproduce by changing other programs to include a copy of itself. It is a parasite program, needing another program to survive.
   worm: A computer program similar to a computer virus but it does not lie dormant nor does it need another program to run.
   logic bomb: A destructive computer program similar to a virus that does not reproduce itself. It acts based on a redetermined event.
   (from What is Cyberculture?, BellSouth Telecommunications, 1993.)

2. Have students work individually or in groups to use the prepared bibliography to read articles about computer viruses in newspapers or in a print/electronic magazine resources.
3. Instruct them to record the findings on:
   a. incidences of computer viruses.
   b. how and why a virus occurred.
   c. short and long term consequences of a computer virus.
   d. methods used to protect computers/networks from computer viruses.
4. Have each group develop a written report, as well as, present the findings orally to the class.
5. After the reports, discuss possible reasons why computer viruses occur.
6. Generate a class list of consequences of computer viruses.
7. Finally, have students brainstorm and discuss ways of protecting against such viruses.

Measure
Have students write an opinion/reason paper about the need for protection of software and hardware from computer viruses.

TERMS
Computer Virus
Logic Bomb
Worm

Ethical Issues

ISSUES
SKILLS
APPLICATION

Computer Skills Curriculum

8

Objectives Addressed by This Lesson

Communication Skills
2.1 The learner will identify, collect, or select information and ideas.
2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
3.3 The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.

Information Skills
1.4 The learner will relate ideas and information to life experiences.
1.5 The learner will communicate reading, listening, and viewing experiences.

Computer Skills: (Gr. 8)
1.3 State the need for protection of software and hardware from computer viruses.

Title: **Effects of Computer Viruses**
Grade: **8**
Competency 1.3: **State the need for protection of software and hardware from computer viruses.**
Measure 1.3.2: **Working in a group, chart and report the possible effects of computer viruses on at least two of the following: schools, businesses, health services, scientific research, or national defense.**

Materials Needed: Media resources on computer viruses.

Time: Four, thirty minute sessions.

Activities

Pre-Activities:
With the Media Coordinator
1. Identify resources containing information about computer viruses affecting schools, businesses, health services, scientific research, and national defense.
2. Schedule time for students to research a variety of media for information about computer viruses.

Activity:
1. Divide the class into 5 groups. Assign each group one of the following areas: schools, businesses, health services, scientific research, or national defense.
2. Have each group research incidences of computer viruses in that area and decide what effects a computer virus could have in that particular environment.
3. After each group reports their findings, lead the class in a discussion of the effects of computer viruses in each area.
4. Discuss the term "hackers" and why these people are sometimes associated with computer viruses.

   hacker: Computer users who enjoy tinkering with computers as a way to develop new features or who intentionally access a single computer, system or a network without permission to do so. They can be there simply to look around or they can be there to destroy.
   (from What is Cyberculture?, BellSouth Telecommunications, 1993.)

5. Brainstorm ways to protect computers/networks from computer viruses.

Measure
Have each group use word processing software or multimedia products to produce a "make believe" scenario of a computer virus disaster, complete with actions taken to prevent future occurrences of a similar type.

TERMS

Computer Virus
Hacker

Ethical Issues

Ethical Issues, Gr. 1-8

computer-related vandalism: Act of damaging, altering, or destroying a computer, computer peripherals, computer software, or computer service.

computer virus: A computer program that can reproduce by changing other programs to include a copy of itself. It is a parasite program, needing another program to survive.

copyright law: Law granting a legal right to a copyright holder which requires the permission of the copyright holder to make non-archival copies of the work in question.

ethical: Conforming to accepted professional standards of conduct.

freeware: A copyrighted program for which the user is not obligated to compensate the author in any manner; a form of shareware.

hacker: Computer users who enjoy tinkering with computers as a way to develop new features or who intentionally access a single computer, system or a network without permission to do so. They can be there simply to look around or they can be there to destroy.

intellectual property: Ideas put into actions, such as writing, music, art, computer code, and inventions, that can be protected under copyright or patent laws.

logic bomb: A destructive computer program similar to a virus that does not reproduce itself. It acts based on a predetermined event.

piracy: The unauthorized duplication and distribution of copyright-protected software.

private data: Information which is confidential and only ethically available to selected individuals.

public data: Information which is available ethically to any user.

public domain program: A non-commercial, copyrighted program free of public restriction. Software placed in the public domain can be copied and used without charge.

shareware: Programs like public domain but ones for which the author/developer requests a donation if you use the software.

unethical: Not conforming to accepted professional standards of conduct.

worm: A program similar to a computer virus, but it does not lie dormant nor does it need another program to run.

Definitions from "What is Cyberculture?" from BellSouth (1993), "The K-12 Guide to Legal Software Use" from Software Publishers Association (1993), and "Don't Copy That Floppy" from Software Publishers Association (1992).

don't copy that floppy!

Lesson Plans

Dear Educator:

The Software Publishers Association (SPA) is pleased to introduce Don't Copy That Floppy!, a fun to watch, rap music video that addresses the ethical use of software. Also included in this learning package are two sets of lesson plans for grades 4-6 and grades 7-8. The learning package is part of the SPA's ongoing effort to help teachers educate K-12 students about the ethical use of software.

Please consider the lesson plans as models, to be revised to fit your students' needs. The sessions have been carefully designed as a sequence of presentations, discussions, and student activities. The two sets of plans cover many of the same concepts and issues, but use different, age-appropriate methods. Though these plans provide a basis for lessons regarding technology and ethics, the messages require reinforcement throughout the curriculum.

As the SPA continues its educational efforts in the area of ethics and software, we appreciate any comments that you, the educators, have with regard to the materials in this learning package or for additional materials. Comments and suggestions can be submitted directly to the SPA, 1730 M St., NW, Suite 700, Washington, DC 20036, ATTN: Education Section Liaison.

We hope that the video and the lesson plans will help students understand that the unauthorized copying of software can hurt a lot of people. It can also prevent software companies from developing the new programs that continue to make learning fun and interesting.

© 1992 Software Publishers Association
The lesson plans were designed by Ellen R. Biala, Jay P. Sivin-Kachala, and Laurie Harvey of Interactive Educational Systems Design, Inc.

The SPA gives you permission to copy this video and the lesson plans for the non-profit purpose of promoting the ethical and legal use of software.

Software Publishers Association, 1730 M St., NW, Suite 700, Washington, DC, 20036

Lessons for Grades 4-6

UNIT 1. HEY! THAT'S NOT FAIR!!

In this five-session unit, students experience what it feels like to be a software programmer or designer and have others get credit for their work. In class discussion, students relate this experience to the concept of *intellectual property*. The class views the SPA video, *Don't Copy That Floppy!*, relates it to the previous sessions in the unit, and discusses the concept of payment, or *compensation*, for intellectual property in general, and for developing computer software in particular. Finally students meet with an adult member of the local community who earns a living as part of a software development team. The students and the software professional discuss the various jobs related to software development, how software companies earn money, and the effect of unauthorized software copying on their ability to earn a living.

Learning Objectives:

Students will:

- Become familiar with the concept of *intellectual property*
- Experience a sense of ownership over their own ideas and intellectual creations, and develop respect for the intellectual property of others
- Experience the negative impact of unauthorized copying of intellectual property, and relate it to their own lives
- Identify computer software as a kind of intellectual property, worthy of protection from unauthorized copying

Prerequisite Skills:

Experience using computers (including word processing software); Basic programming skills using the Logo computer programming language (optional)

Student Grouping:

Whole class for Sessions 1, 3, 4, and 5; Small groups (4 students each) for Session 2.

Materials Needed:

SPA's video, *Don't Copy That Floppy!*, and a videocassette player; Computers; A variety of educational software programs with game formats; Logo programming language software (optional); Word processing software (optional)

Time Required:

Five 45-minute class sessions

SESSIONS 1 AND 2

Pre-activity Teacher Preparation

In anticipation of Session 2, divide the class into work groups, with four students per group. Divide each group into two sub-groups (two students per sub-group): the Workers and the Players.

Gather together several popular educational software programs that incorporate game formats. These will be used by the Players during Session 2. The Workers will be engaged in either software programming with Logo or educational software design.

If you plan to have students program with Logo:

Create a simple Logo program producing a house with a door. Print out the program code for your reference. Make copies of the house created by this code for distribution to each work group.

If you plan to have students develop educational software designs:

Determine the minimum requirements for a software design (e.g., learning goal of the program; the game format or scenario; the educational content or question types; what happens when students answer correctly or incorrectly; scoring; elements of surprise). You may want to prepare these as a Student Activity Sheet.

SESSION 1: WHOLE CLASS PRESENTATION

The whole class presentation depends on whether students assigned as Workers will engage in software programming with Logo or educational software design during Session 2.

don't copy that floppy!

If you plan to have students program with Logo:
Review and demonstrate (or have students demonstrate) the simple Logo commands students will use to build the house.

If you plan to have students develop educational software designs:
Lead a discussion on what it takes to design educational software that students like to use. Present your minimum requirements for an educational software design. Have students review one or two popular educational software products and identify the elements of design that correspond to these minimum requirements.

SESSION 2: STUDENT ACTIVITY

Have each work group divide into its sub-groups: the Workers and the Players.
Direct the Workers to engage in either software programming with Logo or educational software design.

If Workers are to program with Logo:
Distribute copies of the printout of the completed house with a door (the picture but not the program code). Direct student Workers to work in pairs to create a Logo program that reproduces the picture. Near the end of the session, have students print out copies of the picture they created and the corresponding program code (one copy of each for each member of their work group).

If Workers are to develop educational software designs:
Write the minimum requirements for a software design on the board or distribute a copy of these requirements to each pair of Workers. Direct student Worker partners to develop original software designs according to these requirements. Have them write their designs on computer using word processing software. Near the end of the session, have students print out copies of their designs (one copy for each member of their work group).

While the Workers are busy programming or developing their software designs, have the Players play with popular educational software programs.

At the end of the session, have each member of the group (both the Workers and the Players) sign his or her name to a separate copy of the assignment completed by the Workers in their group. Collect the assignments, and announce that each completed assignment will be graded and that every student in the group (Workers and Players alike) will receive the same grade.

SESSION 3

Pre-activity Teacher Preparation

Grade each completed project submitted at the end of Session 2. Make sure to give the same grade to each student in the same group. Bring the graded papers to class.

Whole Class Discussion

Distribute the graded project papers.

Ask the Workers: "How do you feel about the Players receiving the same grade for the work you did?"

Ask the Players: "How do you feel about receiving a grade for work you have not done?"

Lead a discussion on the fairness of receiving credit for someone else's work, of copying someone else's work without permission, or of copying without giving credit to the "creator." Appropriate discussion questions include:
"Is it fair to...?" "Why isn't it fair?"
"Who gets 'hurt'?" "Who 'loses'?"
Introduce the term *intellectual property*, and relate it to the Logo programs or software designs created by the Workers.

Homework Assignment

Ask students to list other examples of their intellectual property that they would not like to have copied without permission or given to others without receiving credit. Examples might include: homework assignments; drawings or pictures students have created; and creative writing.

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Lessons for Grades 4-6

UNIT 2. PROTECTING INTELLECTUAL PROPERTY

This two-session unit is designed to follow Unit 1. Hey! That's Not Fair!! In Unit 2, students complete a Student Activity Sheet on which they collect information about their favorite authors and creators. Then students develop a policy to protect the intellectual property of professional and student authors and creators. Finally, the class discusses U.S. copyright law as a means of protecting intellectual property.

Learning Objectives:

Students will:

- Demonstrate their understanding of the negative impact of unauthorized software copying
- Draft a classroom policy that protects intellectual property (including computer software)
- Become familiar with U.S. copyright law as a means of protecting intellectual property

Prerequisite Skills:

Experience using computers (including word processing software); Experience completing Unit 1. Hey! That's Not Fair!

Student Grouping:

Whole class for most of the unit; Individuals complete the Student Activity Sheet on their own

Materials Needed:

Examples of software, books, and artwork containing the author's name as a form of credit; Computers; Word processing software; SPA's Student Activity Sheet entitled *My Best Discoveries*; Reference materials that indicate authors and/or publishers of popular children's literature and educational software; *Knowing the Law* (or an alternate student handout on U.S. copyright law that you develop).

Time Required:

Two 45-minute sessions

SESSION 1

Pre-activity Teacher Preparation

Gather together examples of software, books, and artwork containing the author's name as a form of credit. Prepare copies of the Student Activity Sheet, *My Best Discoveries*, for distribution to students. Gather together reference materials that indicate authors and/or publishers of popular children's literature and educational software, or arrange with the school librarian to make these available.

Homework Assignment

The week before the in-class discussion and activity for Session 1, have students watch their favorite television show and record the names and job titles of its creators (the writers, directors, producers, and actors). Point out to students that some credits for television programs appear at the start of the show and others appear at the end of the show. Remind students to bring this homework assignment to class on the day of Session 1.

Whole Class Discussion

Explain to the class that the author or creator of a software program, book, piece of artwork, or television program is given credit by having his or her name placed somewhere on the work. The name of the author of a software program can usually be found on the title screen. For the author of a book, credit is given on the title page. The author of a piece of artwork usually signs his or her name somewhere on the piece. Show students examples of credits appearing in different kinds of creative works.

Ask the students why it is important for authors and creators to receive credit. Ask them to name other kinds of compensation authors and creators can receive for their work.

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Lessons for Grades 4-6

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This two-session unit is designed to follow Unit 1. Hey! That's Not Fair!! In Unit 2, students complete a Student Activity Sheet on which they collect information about their favorite authors and creators. Then students develop a policy to protect the intellectual property of professional and student authors and creators. Finally, the class discusses U.S. copyright law as a means of protecting intellectual property.

Learning Objectives:

Students will:

- Demonstrate their understanding of the negative impact of unauthorized software copying
- Draft a classroom policy that protects intellectual property (including computer software)
- Become familiar with U.S. copyright law as a means of protecting intellectual property

Prerequisite Skills:

Experience using computers (including word processing software); Experience completing Unit 1. Hey! That's Not Fair!

Student Grouping:

Whole class for most of the unit; Individuals complete the Student Activity Sheet on their own

Materials Needed:

Examples of software, books, and artwork containing the author's name as a form of credit; Computers; Word processing software; SPA's Student Activity Sheet entitled *My Best Discoveries*; Reference materials that indicate authors and/or publishers of popular children's literature and educational software; *Knowing the Law* (or an alternate student handout on U.S. copyright law that you develop).

Time Required:

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SESSION 1

Pre-activity Teacher Preparation

Gather together examples of software, books, and artwork containing the author's name as a form of credit. Prepare copies of the Student Activity Sheet, *My Best Discoveries*, for distribution to students. Gather together reference materials that indicate authors and/or publishers of popular children's literature and educational software, or arrange with the school librarian to make these available.

Homework Assignment

The week before the in-class discussion and activity for Session 1, have students watch their favorite television show and record the names and job titles of its creators (the writers, directors, producers, and actors). Point out to students that some credits for television programs appear at the start of the show and others appear at the end of the show. Remind students to bring this homework assignment to class on the day of Session 1.

Whole Class Discussion

Explain to the class that the author or creator of a software program, book, piece of artwork, or television program is given credit by having his or her name placed somewhere on the work. The name of the author of a software program can usually be found on the title screen. For the author of a book, credit is given on the title page. The author of a piece of artwork usually signs his or her name somewhere on the piece. Show students examples of credits appearing in different kinds of creative works.

Ask the students why it is important for authors and creators to receive credit. Ask them to name other kinds of compensation authors and creators can receive for their work.

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Student Activity

Direct students to complete the Student Activity Sheet, *My Best Discoveries*. To complete this assignment, have students consult the reference materials on children's literature and educational software, and the information about creators of television programs they collected for homework.

When students have completed the Student Activity Sheet, direct them to write (using a word processor) their ideas for ways, rules or laws to ensure that their favorite authors and creators receive credit and compensation for their work. Have students submit their work at the end of the session.

SESSION 2

Pre-activity Teacher Preparation

Compile the ideas for protecting intellectual property students developed during Session 1. These can be prepared as copies of a printed handout or as a simple idea list on the board.

Prepare copies of *Knowing the Law*. (As an alternative, you may want to prepare your own student handout on U.S. copyright law.)

Whole Class Activity

From the composite list of student ideas, have the class select their classroom rules — creating a policy to protect intellectual property of their class members and their favorite professional authors and creators.

Whole Class Discussion

Distribute copies of the background material you prepared on U.S. copyright law, and have students read it silently. Then lead a discussion on copyright law, what it protects, and why.

Homework Assignment

Have students identify businesses, industries, and jobs that were not discussed in class for which protecting intellectual property is important (e.g., photography; music publishing). For each business, industry, or job, have students describe the kinds of intellectual property that might need protection.

Follow-up/Extension Activity (optional)

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Student Activity Sheet

Name _____ Date _____

Class _____

My Best Discoveries

My favorite book is _____

The reason I like this book is _____

The author of this book is _____

Look for notes about the author on the inside of the book jacket and at the back of the book. If you find these notes list some facts about the author.

_____

_____

My favorite computer program is _____

The reason I enjoy using this program is _____

_____

The creators of this program are _____

_____

My favorite television program is _____

_____

The reason I like this program _____

_____

The creators of this program are _____

_____

What have you created, written, composed, built, or solved recently? (This can be an assignment you have completed or written or a song, poem, or drawing you have created.)

_____

What did you enjoy most about making this?

_____

The author and creator of MY BEST DISCOVERIES is

_____

_____

(Write your name here.)

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Lessons for Grades 7-8

UNIT 1. HEY! THAT'S NOT FAIR!!

In this three-session unit, students experience what it feels like to be a creator of intellectual property (contributing to a class journal) and not to receive credit for their work. In class discussion, students relate this experience to the concept of *intellectual property*. The class also discusses the concept of *compensation* for intellectual property and the negative effects of unauthorized copying of intellectual property. Finally, students discuss the idea that laws can be passed to protect intellectual property.

Learning Objectives:

Students will:

- Become familiar with the concept of *intellectual property*
- Experience a sense of ownership over their own ideas and intellectual creations, and develop respect for the intellectual property of others
- Experience the negative impact of unauthorized copying of intellectual property, and relate it to their own lives
- Appreciate the value of laws to protect intellectual property

Prerequisite Skills:

Experience using computers (including word processing software for composition and graphics software for artwork and design)

Materials Needed:

Computers; word processing and graphics software

Time Required:

Three 45-minute class sessions. Sessions 1 and 2 should take place during the same week, with Session 3 coming at least one week after Session 2. (Some students may want extra, out-of-class time to complete their creative projects. You or student volunteers will require additional time for layout and printing of the final class publication.)

SESSIONS 1 AND 2

Pre-activity Teacher Preparation

Arrange for computers and productivity software to be available to your class during Sessions 1 and 2.

Student Activity

Explain to students that they have been identified as a talented group of student authors, artists, designers and innovators. They have been selected to create a journal to display their talents. Explain that each student is required to complete at least one artistic contribution to the journal that involves writing (using a computer and word processing software, if possible), graphic elements (e.g., artwork developed with graphics software; a photograph taken by the student), or both.

Allow students to use two class periods and (if they wish) their own time to develop their own individual contributions to the journal. (If the student has already completed a work, it is acceptable as an additional submission.) Give students a deadline of one week to complete their contribution. Collect the students' creations prior to Session 3.

Homework Assignment (optional)

You may want to set aside additional time for students to work on the project at home.

SESSION 3

Pre-activity Teacher Preparation

Develop a draft version of the journal that includes creations from each student in the class. Deliberately omit any mention of the individual student contributors and any reference to the class. (NOTE: It is essential to the purpose of this unit that no recognition be given to the class or to any individual.)

Prepare copies of the journal for distribution to the class.

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Whole Class Discussion

Distribute copies of the draft version of the journal to your students for their review.
After the students have had an opportunity to examine the journal, lead a class discussion that focuses on intellectual property issues. Questions you might ask include:

- "How does it feel to have your work distributed without you receiving any credit?"
- "How should the journal be revised?"
- "Suppose we were going to sell this journal to students and parents. Who should receive the money from the sale of the journal?"
- "If the journal is published, and people copy the journal rather than pay for it, who loses? Why?"
- "What guarantee do you have that the journal will not be copied by others? How can you ensure it will not be copied by others?"

Introduce the concept of *intellectual property* and have students relate it to their experience with the journal. Then move the discussion to other situations in which students have experienced people copying the work of others without permission. Likely examples include: homework, in-class assignments, exams, computer software, music audiocassettes, videocassettes, and pages from books. If computer software is not specifically mentioned by students, direct the discussion toward software as a form of intellectual property

Finally, ask students: "What laws should be created to protect people who develop creative works?"

Homework Assignment

Have students identify businesses, industries, and jobs that were not discussed in class for which protecting intellectual property is important (e.g., photography; music publishing). For each business, industry, or job, have students describe the kinds of intellectual property that might need protection.

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Lessons for Grades 7-8

UNIT 2. PROTECTING INTELLECTUAL PROPERTY

This two-session unit is designed to follow Unit 1. Hey! That's Not Fair!!. In Unit 2, students discover that software is protected by U.S. copyright law. The class views the SPA video, *Don't Copy That Floppy!*, and reviews and discusses reference materials on U.S. copyright law and school software guidelines. Finally, the students develop a classroom policy for protecting intellectual property, including computer software.

Learning Objectives:

Students will:

- Demonstrate their understanding of the negative impact of unauthorized software copying
- Draft a classroom policy that protects intellectual property (including computer software)
- Become familiar with U.S. copyright law as a means of protecting intellectual property

Prerequisite Skills:

Experience using educational software; experience completing Unit 1. Hey! That's Not Fair!

Student Grouping:

Whole class for most of the unit; Individuals read background materials on their own

Materials Needed:

Packaging and/or documentation from several popular educational software programs that includes copyright information; SPA's video, *Don't Copy That Floppy!*, and a videocassette player; A disk from a published software package and a blank disk; *Knowing the Law*, (or an alternate set of materials on U.S. copyright law that you organize or develop); the *1987 Statement on Software Copyright: An ICCE Policy Statement*; examples of school software copyright protection policies or guidelines (optional)

Time Required:

Two 45-minute sessions

SESSION 1

Whole Class Discussion and Presentation

Review with students their experiences with the journal, and their feelings and concerns about protecting their own intellectual property. Also review the discussion about software as intellectual property.

Then introduce and show the SPA video, *Don't Copy That Floppy!*

After students watch the video, have them relate its message to their experiences with the journal.

Show students a computer disk from a published software package and a blank disk. Elicit from students or inform them of the typical price of each. Ask students to explain why the published software disk costs so much more than the blank disk.

Probe for specifics (e.g., compensation for designers, educators, graphic artists, writers, editors, programmers). Ask students to guess how much time it takes for each member of the software development team to complete their work.

Ask the students: "When people make extra copies of software programs to give to their friends, how does this help or hurt the people who created the software?"

Homework Assignment

Have students write laws they think would protect intellectual property such as student journals and educational software.

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SESSION 2

Pre-activity Teacher Preparation

Gather together the packaging and/or documentation from several popular educational software programs, making sure that the materials include copyright information.

Prepare copies of the background information on U.S. copyright law, the *1987 Statement on Software Copyright: An ICCE Policy Statement*, and (if you have access to them) examples of school software copyright policy statements or guidelines for distribution to students.

Whole Class Discussion

Have students present and discuss the intellectual property protection laws they wrote for homework. Have students explain what they know about the actual U.S. copyright law and how it applies to computer software.

Identify the copyright symbol and explain what it represents. Point out that sometimes software publishers use the word *copyright* to indicate that a program is protected by copyright law and sometimes they use the copyright symbol instead.

Student Activity

Distribute the packaging and documentation for several of the students' favorite software programs. Have the students locate the word *copyright* or the copyright symbol for several different products.

Independent Reading and Whole Class Discussion

Distribute the background material on U.S. copyright law. Then lead a discussion on how the law protects intellectual property, in general, and computer software specifically. Make sure that students understand the purpose and use of back-up or archival copies of software programs.

Have the class compare U.S. copyright law to the "laws" students wrote for homework.

Distribute the *1987 Statement on Software Copyright: An ICCE Policy Statement* and (if you have collected them) examples of school software copyright protection policy statements or guidelines.

As a class, develop a list of students' ideas (and your own as well) to protect the rights of authors of computer software. You may want to expand the list to include other kinds of intellectual property (e.g., photocopying or copying by hand from books). Use this list as a rough draft of the classroom policy for protecting intellectual property.

Ask students how the classroom policy protects each of the members of the class? Ask: "If this policy were in effect, could the journal episode have been avoided?"

Point out to students that having a policy is no guarantee that the rules will be followed by all members of the class. Stress that trust and personal integrity are the "enforcers" of these rules.

Follow-up/Extension Activity (optional)

Distribute copies of several software publishers' licensing agreements. Review these agreements with your students. Have students compare them to U.S. copyright law and to the classroom intellectual property policy they developed.

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Knowing the Law

It is essential for everyone involved in setting school district policy or overseeing day-to-day copyright decisions to be familiar with the laws governing copyright, as well as with the most common interpretations of these laws as they relate to education. The summaries that follow are meant to provide you with a broad overview and help direct you to the documents that should be studied in greater depth.

Title 17, United States Code

The U.S. Constitution (in Article I, Section 8) grants the federal government the power to set copyright law. The current law, the Copyright Act of 1976, is contained in Title 17 of the U.S. Code. Here are some sections of the Copyright Act/Title 17 that are of particular interest to educators grappling with copyright issues:

Section 102 defines copyrightable materials as "original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated." It lists some types of works that qualify (literary, musical, pictorial, audiovisual, and so on) but makes it clear that these are just examples. It also lists some examples of things that can *not* be copyrighted (including ideas, procedures, and concepts).

Section 106 outlines the five basic rights granted to copyright owners. They are:

1) the right to reproduce (make copies);
2) the right to create "derivative works" (e.g., adaptations, altered versions);
3) the right to sell or distribute to the public;
4) and 5) the right to perform or display the work in public.

This section also states that these rights belong *exclusively* to the copyright owner except when they are curtailed by the limitations and exemptions outlined in sections 107 through 118.

Section 107 explains one of the most significant limitations on the exclusive rights of the copyright owner—that of *fair use*. Fair use is said to apply in such cases as "criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research." This section states that four factors are to be considered in determining whether a particular use is fair:

1) the purpose and character of the use (e.g., whether it's commercial or for nonprofit educational purposes);
2) the nature of the copyrighted work (e.g., whether it's factual or fictional—with reproduction of nonfiction more likely to qualify as fair use than reproduction of an original work of fiction);
3) the amount and *substantiality* of the part used in relation to the copyrighted work as a whole;
4) the effect of the use upon the potential market for or value of the copyrighted work.

Section 108 deals with the rights of certain libraries and archives (those that are open to the general public or to non-affiliated scholars for research purposes) to make single copies for preservation purposes (e.g., when they are damaged and a replacement is not available at a fair price) or for users who request them for "private study, scholarship, or research." The many rights granted in this section are balanced by some clear limits (including the requirement that copyright notices be used; that the library should gain no commercial advantage from the duplication; and that copying must not be done in a "systematic" fashion that substitutes for purchase).

Section 110 focuses on the circumstances under which works may be performed or displayed publicly even if they are not licensed for this purpose (e.g., a videotape purchased with a FOR HOME USE ONLY notice). For educators, one of the most significant portions of this section is clause (1), often referred to as the "face-to-face teaching exemption." This grants teachers or students in a nonprofit educational institution the right to perform or display legally purchased works in the course of instruction in a classroom setting.

Clause (4) is also relevant to schools because it addresses the circumstances under which non-profit public performances (school assemblies, for example) of "nondramatic literary or musical work" are permissible. In addition, clauses (2) and (8) outline some exemptions for the transmission (via cable, closed-circuit TV, etc.) of such work to individuals whose disabilities prevent them from attending school or viewing or hearing the work without assistance.

Section 117 was amended in December 1980 to focus on duplication of copyrighted software by purchasers of that software. This section defines two circumstances under which such duplication is considered legal:

1) when the creation of a copy is an essential step in allowing the software to run on a particular computer;
   or
2) when the copy is created for archival purposes only (to be stored away and used only if the original fails) with the understanding that it will be destroyed "in the event that continued possession of the computer program should cease to be rightful."

Interpretations and Guidelines

To help clarify the confusion about what constitutes fair use, Congress appointed several committees to arrive at guidelines for schools. While these guidelines have not been incorporated into statutory law, they are widely

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accepted as minimum standards for educators to follow in order to "play it safe." Here's a summary:

Guidelines for Copying Books and Periodicals

Drawn up by a committee of authors, publishers, and educators, these guidelines state that the creation of single copies of a variety of works—articles, short stories, poems, illustrations, etc.—by a teacher to prepare for lessons or engage in scholarly research constitutes fair use. They also outline the conditions under which multiple copies of printed work might be made for an entire class, offering three general tests (with specific guidelines for each one) to determine whether the use is really fair:

1) *brevity* (some examples of acceptable lengths: a complete poem of less than 250 words; an excerpt that is less than 1000 words in length or less than 0 percent of the whole; one illustration per book or periodical issue);
2) *spontaneity* (it's most likely to be fair use if the teacher had too little time to request permission to copy);
3) *cumulative effect* (examples of ways of limiting this: photocopies are to be used for one course only; no more than nine instances of multiple copying are permitted in one term).

Other restrictions meant to limit damage to the copyright owner include these: Copyright notice should be included on all photocopies; duplicating should not substitute for purchasing anthologies; "consumables" such as workbooks or test booklets should not be copies; and copying should be initiated by the teacher using the materials,not by a higher authority in the district.

Music Copying

A committee of music publishers and educators drew up guidelines on educational uses of music. Some uses defined as fair:

1) duplication in an emergency *temporarily* to replace purchased copies (e.g., a student forgets or loses sheet music the night of a performance);
2) excerpting small portions of music for non-performance instructional purposes;
3) editing or simplifying printed copies which have been purchased, as long as the fundamental character of the work is not distorted or lyrics changed or added;
4) making a single copy of a sound recording owned by the teacher or institution for the purpose of constructing aural exercises or examinations.

The music guidelines also include restrictions which make it clear that copying without copyright notice, to avoid purchase, or to replace consumables is not to be considered fair use.

Guidelines for Off-Air Videotaping

A third committee was created in 1979 to focus on the issue of commercial television in the classroom. The committee's report, completed in 1981, sets guidelines for the educational videotaping of television programs broadcast for the general public (e.g., not cable-originated shows or special programs available at an extra charge).

Instead of limiting the length of the recording to be made (an approach that makes little sense with linear television shows meant to be viewed as a whole), the guidelines limit the frequency of playback. For example, a recorded program is to be used no more than twice (the second time for reinforcement purposes only) within the first ten school days following the broadcast. After that, it can be used by teachers only for evaluation purposes and must be erased at the end of 45 calendar days following the broadcast. The guidelines also specify that no program may be taped a second time by/for a given teacher, even if re-broadcast.

Once again, the guidelines limit fair use duplication rights to an educational setting (a classroom or similar place devoted to instruction or the home of a student receiving formalized home instruction); prohibit routine copying that would substitute for purchase (e.g., off-air copying must be requested by a teacher, not conducted routinely in anticipation of requests); and require that copyright notice be included. This committee also specified that educational institutions are expected to establish appropriate control procedures to maintain the integrity of these guidelines.

Knowing the Law *is reprinted with permission from Technology Learning Magazine, Peter Li, Inc.*

1987 Statement on Software Copyright
An ICCE Policy Statement

Background

During 1982-83, educators, software developers, and hardware and software vendors cooperated to develop the ICCE Policy Statement on Network and Multiple Machine Software. This Policy Statement was adopted by the Board of Directors of the International Council for Computers in Education (ICCE) in 1983, and was published and distributed. It has received support from hardware and software vendors, industry associations and other education associations. One component of the Policy Statement, the "Model District Policy on Software Copyright," has been adopted by school districts throughout the world.

Now, three years later, as the educational computer market has changed and the software market has matured, ICCE has responded to suggestions that the policy statement be reviewed by a new committee and revisions be made to reflect the changes that have taken place both in the marketplace and in the schools.

The 1986-87 ICCE Software Copyright Committee is composed of educators, industry associations, hardware vendors, software developers and vendors, and lawyers. All the participants of this new Committee agree that the educational market should be served by developers and preserved by educators. To do so requires that the ICCE Policy Statement be revisited very few years while the industry and the use of computers in education are still developing.

Responsibilities

In the previous Policy Statement, lists of responsibilities were assigned to appropriate groups: educators; hardware vendors; and software developers and vendors. The suggestion that school boards show their responsibility by approving a district copyright policy was met with enthusiasm, and many districts approved a policy based on the ICCE Model Policy. The suggestion that software vendors adopt multiple-copy discounts and offer lab packs to schools was likewise well received; many educational software publishers now offer such pricing. It is therefore the opinion of this committee that, for the most part, the 1983 list of recommendations has become a *fait accompli* within the industry, and to repeat it here would be an unnecessary redundancy.

Nevertheless, the Committee does suggest that all parties involved in the educational computing market be aware of what the other parties are doing to preserve this market, and that the following three recommendations be considered for adoption by the appropriate agencies.

School District Copyright Policy

The Committee recommends that school districts approve a District Copyright Policy that includes both computer software and other media. A Model District Policy on Software Copyright is enclosed.

Particular attention should be directed to item five, recommending that *only one* person in the district be given the authority to sign software licensing agreements. This implies that such a person should become familiar with licensing and purchasing rights of all copyrighted materials.

Suggested Software Use Guidelines

In the absence of clear legislation, legal opinion or case law, it is suggested that school districts adopt the enclosed Suggested Software Use Guidelines as guidelines for software use within the district. The recommendation of Guidelines is similar to the situation currently used by many education agencies for off-air video recording. While these Guidelines do not carry the force of law, they do represent the collected opinion on fair software use for nonprofit education agencies from a variety of experts in the software copyright field.

Copyright Page Recommendations

The Committee recommends that educators look to the copyright page of software documentation to find their rights, obligations and license restrictions regarding an individual piece of software.

The Committee also suggests that software publishers use the documentation copyright page to *clearly* delineate the users' (owners' or licensees') rights in at least these five areas:

1. How is a back-up copy made or obtained, how many are allowed, and how are the back-ups to be used (e.g., not to be used on a second machine at the same time)?
2. Is it permissible to load the disk(s) into multiple computers for use at the same time?
3. Is it permissible to use the software on a local area network, and will the company support such use? Or is a network version available from the publisher?
4. Are lab packs or quantity discounts available from the publisher?
5. Is it permissible for the owner or licensee to make copies of the printed documentation? Or are additional copies available, and how?

ICCE — Suggested Software Use Guidelines

The 1976 US Copyright Act and its 1980 Amendment remain vague in some areas of software use and its application to education. Where the law itself is vague, software licenses tend to be much more specific. It is therefore imperative that educators read the software copyright page and understand the licensing restrictions printed there. If these uses are not addressed, the following Guidelines are recommended.

These Guidelines do not have the force of law, but they do represent the collected opinion on fair software use by nonprofit educational agencies from a variety of experts in the software copyright field.

Back-up Copy: The Copyright Act is most unclear as it applies to loading the contents of one disk into multiple computers for use at the same time. In the absence of a license expressly permitting the user to load the contents of one disk into many computers for use at the same time, it is suggested that you *not* allow this activity to take place. The fact that you physically can do so is irrelevant. In an effort to make it easier for schools to buy software for each computer station, many software publishers offer lab packs and other quantity buying incentives. Contact individual publishers for details.

Local Area Network Software Use: It is suggested that before placing a software program on a local area network or disk-sharing system for use by multiple users at the same time, you obtain a written license agreement from the copyright holder giving you permission to do so.

The fact that you are able to physically load the program on the network is, again, irrelevant. You should obtain a license permitting you to do so before you act.

Model District Policy on Software Copyright

It is the intent of [district] to adhere to the provision of copyright laws in the area of microcomputer software. It is also the intent of the district to comply with the license agreements and/or policy statements contained in the software packages used in the district. In circumstances where the interpretation of the copyright law is ambiguous, the district shall look to the applicable license agreement to determine appropriate use of the software [or the district will abide by the approved Software Use Guidelines].

We recognize that computer software piracy is a major problem for the industry and that violations of copyright laws contribute to higher costs and greater efforts to prevent copying and/or lessen incentives for the development of effective educational uses of microcomputers. Therefore, in an effort to discourage violation of copyright laws and to prevent such illegal activities:

1. The ethical and practical implications of software piracy will be taught to educators and school children in all schools in the district (e.g., covered in fifth grade social studies classes).

2. District employees will be informed that they are expected to adhere to section 117 of the 1976 Copyright Act as amended in 1980, governing the use of software (e.g., each building principal will devote one faculty meeting to the subject each year).

3. When permission is obtained from the copyright holder to use software on a disk-sharing system, efforts will be made to secure this software from copying.

4. Under no circumstances shall illegal copies of copyrighted software be made or used on school equipment.

5. (Name or job title) of this school district is designated as the only individual who may sign license agreements for software for schools in the district. Each school using licensed software should have a signed copy of the software agreement.

6. The principal at each school site is responsible for establishing practices which will enforce this district copyright policy at the school level.

The Board of Directors of the International Council for Computers in Education approved this policy statement January, 1987. The members of the 1986 ICCE Software Copyright Committee are:

Sueann Ambron, American Association of Publishers
Gary Becker, Seminole Co. Public Schools, Florida
Daniel T. Brooks, Cadwalader, Wickersham & Taft
LeRoy Finkel, International Council for Computers in Education
Virginia Helm, Western Illinois University
Kent Kehrberg, Minnesota Educational Computing Corporation
Dan Kunz, Commodore Business Machines
Bodie Marx, Mindscape, Inc
Kenton Pattie, International Communications Industries Association
Carol Risher, American Association of Publishers
Linda Roberts, US Congress — OTA
Donald A. Ross, Microcomputer Workshops Courseware
Lary Smith, Wayne Country Int. Schl. Dist., Michigan
Ken Wasch, Software Publishers Association

In June 1989, the International Council for Computers in Education (ICCE) merged with the International Association for Computing in Education (IACE) to form the International Society for Technology in Education (ISTE). *Permission to reprint this document is granted.*

ISTE, 1787 Agate Street, Eugene, OR 97403-1923

DISTRICT POLICY STATEMENT

1. _____ purchases or licenses the use of copies of computer software from a variety of publishers and distributors. The district does not own the copyright to this software or its related documentation and, unless authorized by the software developer, does not have the right to reproduce it for use on more than one computer.

2. The _____ is committed to providing employees, teachers, and students with intellectual property and copyright law information. All _____ personnel shall receive guidelines and training on copyright law, storage and security of software, and audit procedures for the district.

3. With regard to use on local area networks or on multiple machines, _____ employees shall use the software only in accordance with the license agreement.

4. _____ employees learning of any misuse of software or related documentation within the company shall notify the district technology manager or District legal counsel.

5. According to US Copyright Law, illegal reproduction of software can be subject to civil damages of as much as $250,000 per work copied, and criminal penalties, including fines and imprisonment. District employees who make, acquire, or use unauthorized copies of computer software shall be disciplined as appropriate under the circumstance. Such discipline may include termination. _____ _____ does not condone the illegal duplication of software.

I am fully aware of the software protection policies of _____ _____ and agree to uphold these policies.

_____ _____
Employee Signature Date

SOFTWARE CODE OF ETHICS

All employees and students shall use software only in accordance with its license agreement. Unless otherwise noted in the license, or in the event that software arrived without a license agreement, any duplication of copyrighted software, except for back-up and archival purchases, is a violation of federal law and District policy. This signed Code of Ethics will be filed with the District Software Manager.

1. I will use software according to the provisions of license agreements.
2. I will not make unauthorized copies of software under any circumstances.
3. I recognize that the District will not tolerate the use of any illegal software copies on District computers.
4. I understand that anyone found copying software other than for back-up purposes is subject to district disciplinary actions.
5. I understand that anyone found making illegal software copies may be subject to civil and criminal penalties. .
6. I will report any suspected misuse of software to the District Software Manager.

Name: _____ / _____
(please print) (Signature)

Date: _____